

Spring 1994

\$3.95 U.S. / \$4.75 Can. / £1.95 U.K.

AMAZING STORIES

Alan Dean Foster
Frederik Pohl
Augustine Funnell
Robert Silverberg



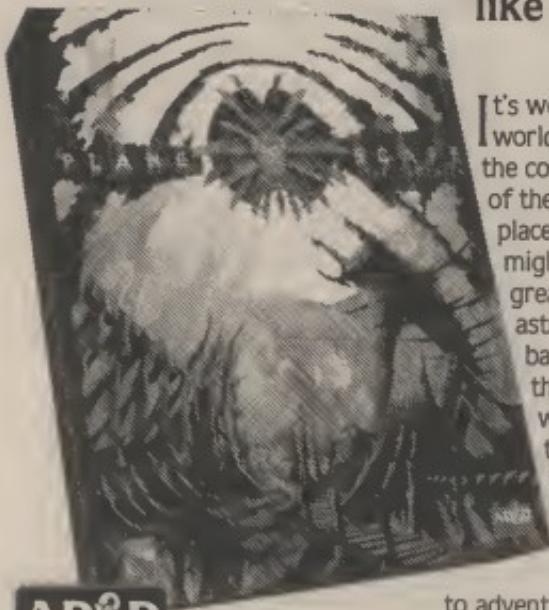
01

A standard linear barcode is positioned vertically on the left side of the page. The numbers "0 73361 64461 1" are printed vertically next to the barcode.



FANTASY... TAKEN TO THE EDGE

You've never experienced anything
like this before!



AD&D
2nd Edition

It's worlds beyond our world, the great wheel of the cosmos. The multiverse of the planes is a grand place to mingle with mighty minions of the great powers, sail the astral ocean, or even battle fiendish beings on their own turf. So, where to begin? Sigil, the City of Doors, in the fantastic **PLANESCAPE™** Campaign Setting that opens all planes to adventurers of all levels.

TSR #2600

Sug. Retail \$30.00; CAN \$42.00; £21.50 U.K. Incl. VAT

ISBN 1-56076-834-7

New From TSR!



AMAZING[®]

STORIES

Contents

Cover illustration by Carol Heyer

REFLECTIONS

- 4** Robert Silverberg
-

FICTION

- 8** *An Hour in the Dead Lands*
by Augustine Bruins Funnell
- 32** *Takeover* by Dwight V. Swain
- 43** *Notes Toward a Proof of the Theorem:
Love Is Hunger* by Dale Bailey
- 52** *Every Comfort of Home*
by Laura Anne Gilman
- 59** *Bitter Business as the Day*
by Pamela D. Hodgson
- 70** *Protectors* by Malcolm Beckett

FICTION

79 **Ladies' Day** by Alfred D'Attore

119 **Our Lady of the Machine** by Alan Dean Foster

NONFICTION

88 **Where Space Travel Went Wrong**
by Frederik Pohl

100 **Writing, Science Fiction, and Family Values**
by Pamela Sargent

112 **Iceworlds, Waterworlds, and Inside-Out
Oceans** by Stephen L. Gillett

Volume 69, Number 1 (Whole Number 590) Spring 1994

8161-01

Publisher: Lorraine D. Williams

Associate Publisher: Brian Thomsen

Editor-in-Chief: Kim Mohan

Design and Production: Dawn Murin

Marketing Manager: Jim Fallone

Circulation Manager: Janet Winters



AMAZING® Stories (ISSN 1058-0751) is published quarterly by TSR, Inc., P. O. Box 111 (201 Shendan Springs Road), Lake Geneva WI 53147.

Subscriptions: The standard price of a subscription is \$10 for 4 issues (one year) sent to U.S. or Canadian addresses. For subscriptions sent to all other countries, the rates are \$16 for surface mail or \$25 for air mail. **Note:** All subscriptions must be paid in advance in U.S. funds only. Prices are subject to change without notice. All subscription orders should be sent to TSR, Inc., P.O. Box 5695, Boston MA 02206.

Distribution: The principal distributor of AMAZING Stories in the United States and Canada is Eastern News Distributors, Inc. The magazine is distributed to the book and hobby trade in the United Kingdom by TSR Ltd.

AMAZING and the AMAZING logo are registered trademarks owned by TSR, Inc. The TSR logo is a trademark owned by TSR, Inc.

Copyright ©1994 TSR, Inc. All Rights Reserved.

Printed in the United States of America. Reproduction or use of editorial content in any manner without permission is prohibited.

Second class postage paid at Lake Geneva, Wis., and additional mailing offices. Postmaster: Send address changes to TSR, Inc., P.O. Box 111, Lake Geneva WI 53147.

Reflections

Robert Silverberg

While some of us were at the World Science Fiction Convention in San Francisco last September, two noteworthy events involving robots were taking place out in the real world.

One occurred in suburban Maryland, where police were attempting to persuade a man accused of killing his girlfriend to emerge from his apartment—in which he had holed up, wielding a shotgun—and surrender. The five-hour standoff ended when the police sent a robot in to collar the suspect, which the robot proceeded to do in a way that will seem very amusing indeed to anyone who doesn't happen to be Craig Allen Smith of Greenbelt, Md.

The 22-year-old Smith allegedly

shot his live-in girlfriend, Cynthia Marie Wilkinson, after an argument. A friend who was in their apartment when the shooting occurred jumped out a second-story window and called the police. Lengthy telephone negotiations followed as the police tried to induce Smith to come out. But he showed no inclination toward doing any such thing, and finally the robot went in to get him.

If you think the Maryland robot looked anything like Isaac Asimov's famous robot detective, R. Daneel Olivaw, think again. When we first meet R. Daneel in Asimov's novel *The Caves of Steel*, he's wearing "an ordinary Textron shirt, open collar, seam-zipped, ruffled at the wrist . . ."

Asimov speaks of "the calm and unemotional lines of his broad, high-cheekboned face, the careful set of his short, bronze hair lying flatly backward and without a part." R. Daneel, in short, looks more or less human, as do most of the Asimovian positronic robots.

Whereas the robot who helped the Maryland police nab their man looked more like a six-wheeled golf cart with assorted gadgetry attached. The 480-pound remote-controlled gizmo, which actually belongs to the Prince George's County Fire Department and is ordinarily used to disarm explosive devices, has no humanoid features whatsoever.

The arrest went something like this: The robot—it doesn't seem to have a name, nor even a cuddly number like R2-D2—bashed its way into Smith's apartment and cruised around the place looking for him, reporting all the while on its activities via closed-circuit television to the police technician who was operating its controls. Smith turned out to be hidden beneath a pile of clothes in a bedroom closet. The robot, which has various armlike extensions, opened the closet door and removed the stack of clothes. Smith, no doubt feeling pretty annoyed at the intrusion, snatched them back and buried himself again, but the implacable robot was easily able to cope. Bringing its formidable high-pressure water-gun into action now, it uncovered Smith

again, knocked the shotgun out of his hands, and in general so bedeviled him with the vigorous spray that he came staggering out of the closet in a disoriented condition—straight into the hands of the arresting authorities.

Pretty funny, unless you happen to be Craig Allen Smith. Driven from your hiding place in your very own clothes closet by a pesky little golf-cart kind of thing—deprived of your weapon by a high-pressure water-jet. . . .

Everything even went in accordance with the Asimovian Laws of Robotics, too. (The First Law: "A robot may not injure a human being. . . .") Not that the Prince George's County Fire Department robot was troubled by any inherent restrictions of the sort out of which Asimov generated the conflicts in his ingenious robot stories; but even so I think it would have been permissible under the Three Laws to flush a suspected criminal out of a closet with a water-gun.

While this quasi-comic episode was taking place on the East Coast, scientists in Huntington Beach, California, were testing the responses of a very different kind of robot that will—so it is hoped—carry out the first extensive land exploration of the surface of Mars a few years from now.

This is the Marsokhod robot, a Russian-built, 190-pound device that is equipped with four independently powered rollers to car-

ry it over the rugged Martian landscape, and a pair of television-camera eyes capable of transmitting stereo images across space. The Russians plan to ship it to Mars in 1996 aboard an unmanned spacecraft and set it roaming over a sixty-mile range.

In its most rigorous field test to date, the Marsokhod—which had previously been put through its paces under joint Russian-American auspices in three simpler workouts during 1993, one in the Mojave Desert, one at the Ames Research Center in Mountain View, California, and one on the campus of Stanford University—was stationed on the rugged boulder-strewn slopes of the Tolbachik volcano on Siberia's Kamchatka Peninsula. American computer experts at Ames had designed the software that will enable scientists on Earth to “see” through the eyes of the Marsokhod's twin cameras; and now a team at the McDonnell Douglas Space Systems lab at Huntington Beach tested that software via satellite-relayed signals across the 6000-mile gap between California and Siberia while Russian space researchers looked on both in Huntington Beach and at the Siberian testing grounds.

The robot spacefarer functioned perfectly as the McDonnell Douglas people issued their commands. Obeying orders from California that reached it at the speed of light, the Marsokhod rumbled back and forth across

the rough volcanic landscape without a hitch, swiveling its television eyes this way and that and sending sharp images back to Huntington Beach. When the robot makes its journey to space a few years from now it should easily be able to provide the watching scientists with a virtual-reality effect by means of which they will seem actually to be aboard the robot vehicle as it wanders over the sands of Mars.

As I've noted, the Marsokhod—and the robot that made the arrest in Maryland—look nothing at all like the humanoid robots of Isaac Asimov's classic stories, the first of which was written more than fifty years ago. Neither do any of the thousands and thousands of industrial robots that have gone into service in factories all over the world since the Age of Robotics got under way a couple of decades back.

Does that mean that science fiction, by foreseeing a world in which robots were humanoid devices like Asimov's R. Daneel and George Lucas' C-3PO instead of ambulatory golf carts and television-equipped tractors, completely missed the conceptual boat?

Hardly. Asimov's robots look more or less human because Isaac wanted to explore the notion of a second, nonbiological, human race coming to live alongside us. And Lucas provided us not only with the humanoid C-3PO but also with the nonhumanoid R2-D2.

And, in fact, the nonhumanoid robot was explicitly predicted in Anthony Boucher's classic short story *Q.U.R.* all the way back in 1943. "There was a table," Boucher wrote, "and on that table was a box. And from that box there extended one arm, which was alive. That arm punched regularly and correctly at the lights." The box with the arm is a robot, doing the job for which it has been programmed.

Boucher goes on to explain: "When Zwergerhaus invented the first robot, he wasn't thinking functionally. He was trying to make a mechanical man. He did, and he made a good job of it. But that's silly. Man isn't a functionally useful animal. There's very little he can do himself. What's made him top dog is that he can invent and use tools to do what needs doing. But why make his mechanical servants as helplessly constructed as he is?

"Almost every robot, except perhaps a few like farmhands, does only one or two things and does those things constantly. All right. Shape them so that they can best do just those things, with no parts left over. Give them a brain, eyes and ears to receive commands, and whatever organs they need for their work."

Exactly so. Assembly lines everywhere today are equipped with robots of precisely the sort that Anthony Boucher envisioned: boxes with arms that reach out to do a single job. They aren't as

clever as Boucher's thirtieth-century robots, which in effect had minds and personalities, but they get their work done nonetheless.

So does that firehouse robot in Maryland, the one that has the handy-dandy squirt-gun, not only so useful in soaking nasty bombs but also in flushing suspected criminals out of their hiding places. And so does that clanking wide-eyed critter, the Marsokhod, which in another few years will be traversing the dreary deserts of the red planet on our behalf.

They aren't terrifying, these robots. They're not likely to run amok and generate excitement suitable for melodramatic Hollywood sci-fi flicks. All they are is machines that do jobs that human beings don't want to do themselves.

The Age of the Robot seems to have sneaked up on us very quietly indeed. And right now it looks as though it will be R2-D2, not C-3PO or R. Daneel, that will be the defining archetype of the era of mechanical men. ♦

An Hour in the Dead Lands

Augustine Bruins Funnell

Gus Funnell isn't one for talking about himself—a trait that perhaps more people ought to possess, and a characteristic that's eminently excusable in the case of a good writer who prefers to let his work do the talking.

Gus tells us that his first sale in the field was "a bad SF/adventure novel, followed immediately by one even worse." His stories have appeared in *F&SF*, Cemetery Dance, the new Universe 1 anthology, and other genre publications. About himself, the only other fact he mentions is that "After the Boston Bruins, nothing much matters." The meaning of that remark is left as an exercise for the reader.

The world as George Abbott knew it came to an end on a westbound stretch of the Trans-Canada Highway, just past the Mactaquac Dam. It came to an end at ninety-eight kilometres an hour, with the Saint John River on his right and the colours of late autumn splendour on tree-covered hills to his left. Metal and glass and rubber enclosing flesh and bone passed from a world so familiar he barely noticed it, into a world so bleak he nearly lost control of the car before pulling off to the side of the road and stopping. With the engine rumbling softly, the radio suddenly dead, he sat for half a minute staring straight ahead, his lips moving silently in stunned disbelief. Then he sat for another half-minute with his eyes closed so tightly they hurt, and with his hands wrapped in a death grip around the steering wheel. And finally, finally, without even the trace of a thought nibbling at the edges of his mind, he opened his eyes and stared blankly into the nightmare.

For as far as he could see, the landscape was bleak, blasted, deserted. Made up of harsh grays and dark browns, sometimes broken by

stubby black shapes a couple of feet high that might have been trees in another time and another place, it showed no hint of life. He was reminded of the scenes from old newsreels of World War One, after the fighting and the bombings, when the land was pockmarked with holes and smoke and twisted corpses, and little else. Except there was no smoke, there were no corpses. There *were* holes, much like bomb craters. Had those old newsreels been presented in sepia browns and burnt yellows, they would have been no different from the landscape stretching endlessly before him. Except that through this particular desolation, pretty much straight at the moment but curving gently here and there, was the familiar white- and-yellow-lined ribbon of asphalt that was the Trans-Canada Highway. So familiar to him, yet so alien in this environment, he almost screamed as his eyes followed its path into the hazy distance.

It took an enormous amount of strength, but slowly he managed to turn his head to the left. The dappled hills were gone, although there did seem to be some sort of gentle slope. The charred stumps of what he was now certain were—had been—trees poked into view, jagged, dead. He turned back, eyes scanning across the line of black that was the highway, to the right where less than two minutes ago the Saint John River had been alive with the sparkle and dance of sun diamonds, but the view in that direction held no reassurance. There was no water, not even a hint, merely a gentle, almost indiscernible slope of cracked gray earth and dirty brown sand and rock. What had been the far bank supported no houses, anchored no trees, indeed was not even recognizable as the bank of a river. The hills over there, which had almost matched those on the bank closer to him, now still almost matched, but they could not be called hills. Charred and dead, the flatness was broken only by an occasional rise he wasn't even sure he saw. And there, too, the charcoal stumps of trees long dead.

There was no green anywhere. Not a leaf, not a blade of grass. Nor was there any hint of blue; the sky was a dull gray, sunless, cold. No red, no orange, no pink. From the late autumn splendour of North America into the dirty dead wasteland of a war-torn African desert, in the space of a single heartbeat.

He took a deep breath. Clenched the steering wheel. Stared into the dead, dry oblivion ahead of him. Focused, finally, on the surface of the highway, tarred here and there by road repair crews God only knew how long ago.

A sudden thought occurred to him, and he let go of the steering wheel to spin around in the seat and stare through the rear window. But there was no hope behind him either. The landscape there was also blasted and dead, the river nonexistent, the hills pummeled into sub-

mission. There was only the road, black asphalt and blacker tar, lined with white and yellow stripes, stretching into the distance so far it became invisible.

He turned back to the scene in front of him, mumbled a whispered, "Jesus, help me," and fought back a strong urge to cry. The strongest such urge he'd had in two days.

Was this a flashback linked to some Sixties overindulgence? A brief lapse into mental instability? God knew he had been under a lot of pressure lately, pressure intensified by the purpose of his trip. . . . But no, on some level he could not rationally define, he knew he had not lost control of his faculties. He had indeed driven out of the world as he knew it and into this other. The only question seemed to be: how was he going to get out?

It was a question too large for an immediate answer, but a question that nonetheless demanded exactly that. Unconsciously, he reached toward the ignition to shut it off, give himself time to think, but he caught himself at the last instant. What if the car wouldn't start again? He checked the gasoline gauge with a nervous start, even though he knew full well he had topped off at the Ultramar station back home in Fredericton. It registered, thankfully, full.

He had always seen himself as a rational man, a calm and intelligent man who could unfailingly handle what was presented to him. Even given his mission of just ten minutes before, he could not recall a time in his adult life when he had not been able to turn a bleak situation into something of which he was the master. But this . . . *this* . . .

He turned for another look back the way he had come, and knew in his heart that shifting into reverse and moving that way would alter nothing. Still, he did it. Slowly, carefully, so that he wouldn't back into the soft sand and rock, he moved in reverse, staying on the shoulder of the highway so that if by some miracle he *did* emerge in his own world, he would not be backing into any traffic that happened to be tooling down the Trans-Canada Highway at a hundred kilometres an hour. He went past the spot where he was sure he had entered this desolate nightmare, went back further, further still, and only after five minutes of slow, steady driving did he brake and shift into neutral.

He thought for a moment, but there seemed to be no sense to make of the situation. He got out of the car, leaving the engine idling, and stood on the asphalt. He knelt, ran his hand over its pebbled surface, and was certain the road was, unmistakably and unfathomably, the very same road, built of the same substances with which he was familiar. Almost, he laughed, but he recognized in that reflex the danger that was lunacy, and reined in tightly on himself.

The air was dry, hot. Had it been a physical substance he could hold

in his hand, it would have been brittle and fragile, crumbling to dust at the slightest touch. There was the merest hint of a breeze, but it offered no invigoration, seeming only to further heat the air.

He moved away from the car, far enough that its idling engine was nothing more than a soft purr, and listened as closely as he could for any other sound. There was nothing, nothing at all.

The vast, unrelenting emptiness of the landscape made him suddenly nervous, agoraphobic. He took three quick steps toward the car; then, much as he had forced himself not to laugh, he forced himself not to hurry. The car was right there, in plain sight. *Don't you mean plane sight, all things considered?* he asked himself, but dismissed the thought immediately as one more dead-end avenue onto which his mind might turn in an attempt to come to terms with this calamity. *The car's right there, in plain sight*, he told himself again, *and it's not going anywhere unless you drive it.*

That thought, in turn, raised another question: should he stay here, or drive on? He couldn't know for certain, but staying here seemed pointless. There might have been some mind-boggling shift in reality that would, if he stayed put, come full circle and shift him back where he should be, but he doubted it. He didn't know why, but he did sincerely doubt it. Barring that miraculous realignment of the cosmos, what good would it do him to stay here and wait until his car eventually ran out of gas? None. Absolutely none.

He reached the car, got in, and closed the door with relief. He wiped beads of sweat from his forehead, then leaned over and opened the glove compartment. He stayed in that position for almost fifteen seconds, staring into the little space illuminated by the tiny light inside.

The handgun gleamed like an evil thing, and although he had handled it lovingly and regarded it through narrow eyes less than an hour earlier, he didn't want to touch it just now. But this was down the rabbit hole or worse, and there might be sudden and immediate need for a weapon. There was nothing wrong anywhere that he could see, but that didn't mean that further up the road there wouldn't be something. He reached in, removed the handgun, and placed it on the passenger seat, within quick and easy reach.

There are only six bullets in the thing.

Well, he hadn't intended to use any more than one, had he? Who the hell knew he was going to drive into oblivion? Unconsciously, purely through reflex, he looked at his watch—2:45:21. It didn't become :22. Not that second, not the next, not even the one after that. 2:45:21. Now and forever.

It all hit him then, hit him with sledgehammer force, and he permitted himself the luxury of a shuddering sob and the subsequent tears.

He slumped over the steering wheel like a rag doll and wept for as long as he needed to.

After a time he felt better—a little, anyway—and he wiped his eyes and blew his nose on a tissue pulled from a small package of Kleenex he kept under the elastic flap of the sun visor. His fear and sense of uncertainty had given way to a touch of anger, a hint of curiosity, and a trace of determination. Not entirely, but enough that he could rest his arms on the steering wheel, rest his chin on his arms, and stare through the windshield at the desolation that lay before him, all without wondering if he had gone mad, all without the searing fear that he was doomed forever. If there was a way in, it followed, logically, that there was a way out. Or so he hoped. And although the hope, also logically, had to be as slim as his chances of ending up here in the first place, it was nonetheless hope.

He lifted his head, removed his arms from the steering wheel, and shifted into drive.

"'Drive, He Said,'" he said.

And he drove. Much more slowly than the ninety-eight kilometres an hour of a short time earlier, much more carefully, alert to any hint of life. There had to be something, somewhere, he was certain. Even though there were no trees or grass or plants of any kind, he was nonetheless able to breathe; that meant that somewhere there was vegetation, and if there was vegetation there was life. He wasn't sure he wanted to know precisely what kind of life, but his options were slim.

He drove. Past where Prince William and Dumfries and Pokiok had been, recognizable not because there were ruins or landmarks, but because the road still turned at those places where he expected it to, and he knew where those tiny communities had been. None of the exits or side roads leading into those places still existed, of course, but he had traveled this road countless times in his world, and he knew where they should be.

There was still no colour, still no life.

He drove.

After what seemed an hour, the needle of the gas gauge had not moved a jot. He didn't know whether that reassured him or not. He needed stability, some measure of predictability, and the idea that what was immutable in his world might not be so here was not something that appealed to him. He wondered again, but much more briefly this time, if his sanity was deserting him, and came to the conclusion that even if it were so, he would still have to exist here, under whatever natural laws prevailed. Perhaps a slight loss in the ability to perceive reality as it was would be an asset.

Enough of that.

His original plan had called for him to make the three-and-a-half-hour drive to Edmundston, kill the sonuvabitch who desperately needed killing, then return to Fredericton; if his bearings were correct, he was still two hours away from Edmundston—or where Edmundston had been—and although he wasn't sure his arrival would change his situation, he was determined to press on, to stop when he was certain he was at the correct exit, and take it from there. If it was at all possible to murder Hainsworth, even in this nightmare, then the bastard was going to be murdered! For now, he had to stay calm, attentive.

It was another half-hour before he saw the ghosts. They stood motionless, facing him, perhaps half a kilometre away, three eerie forms whose outlines he saw clearly, but through whom he was certain he could see dirt and sand and rock. The mere fact of their existence startled him, forced his right foot to the brake before he had even begun to think about it.

He coasted to a halt nearly a hundred metres away, reaching immediately and unconsciously for the pistol on the seat beside him the instant he had shifted into park. The figures continued to stand, immobile, staring in his direction. He checked nervously to his left, across a flatness broken only by charred tree stumps and blasted rock, then to his right down a gentle slope that offered no protection to anyone else who might be nearby. A quick check of his rear-view mirror showed no movement, no life.

He shifted his attention back to the three standing figures. Had they moved closer? He wasn't sure. He didn't *think* so. He blinked, stared hard in their direction. There was no doubt: three people stood there, their outlines clearly visible, but their bodies somewhat transparent; he *could* see through them, as if they were polyethylene sheets upon which features and clothing had been drawn with pencils of gray and faint blue and black. One of them was hooded, his features hidden. Another was short, very short, perhaps no more than one and a half metres tall. They all seemed gaunt, lost.

He didn't know how long he sat watching them, his left hand on the steering wheel, his right holding the gun beneath the dash, the soft grumble of the engine the only noise. Once he thought he saw them flicker, as if they were about to . . . to . . . what? Move? Disappear? A little later he saw the same thing, but he still wasn't sure there was any real change. A brief wisp of breeze sent a few grains of sand scurrying about their feet, but they took no notice.

When they finally began to move, slowly, calmly, Abbott almost pulled the trigger. He sat bolt straight suddenly, forced to make a

choice. Did he dare get out of the car and confront them? He had the gun, but of what use would it be if he could see through their bodies? Would they stop if he commanded it? Probably not. He could back up, try to turn the car around and flee, but there was nothing back that way, nothing at all, as he knew all too well. Drive forward? Past or through or over them as the situation dictated, and hope for better things down the road?

In the end, he knew he could do none of those things. For what seemed the past two hours, he had searched in vain for some indication of life, some human form amid the emptiness, and now that there *were* human forms, he couldn't very well avoid contact. That didn't mean he had to like it.

He made his decision reluctantly, and opened the door, his eyes never leaving the approaching trio. They had covered no more than a fifth of the original distance between themselves and his car, but they were moving closer with each second, and there was no doubt they were coming to him.

He stood, with the car door open between him and them, the gun in his right hand dangling over the top so they could see it. He thought a flickering smile passed across the face of the short one, but they were still too far away for him to be certain. The hooded one seemed to fall behind the other two as they neared, and the closer they got, the greater the distance between them grew. He realized with a start that the third one was a woman. Her clothing had suggested she was no different from the other two; her features were virtually expressionless, the lines of her body masculine.

The closer they got, the more nervous Abbott became. But he couldn't run, not now, and even if he did, where would he go? No, he had to stay put. If there still was an Edmundston, and Hainsworth was still there, there would be time enough to square matters.

They were no more than ten metres away when Abbott lifted the gun and took dead aim on the short one's forehead. "Stop right there."

He was almost surprised when they did. The short one and the woman, at least. The hooded figure continued to move until he had closed the gap between himself and his companions. Only then did he stop, his features entirely shadowed, his arms hanging like dead things at his sides.

Abbott wiped the sweat off his forehead, licked his lips, and stared intently at the three of them. The hooded one needed only a scythe to complete the image of the Grim Reaper. His hands hung out of the sleeves of his robe like sticks, so thin that Abbott could almost see bone. It was a very strange sight, he thought, because he could see the emaciated flesh, and, straight through it, the landscape beyond. They had some substance, then, but not much.

The short one was gaunt, perhaps more so than the other two, and his features were drawn, haggard. His scalp was patches of dirty hair and rough, scabby skin that looked diseased. He regarded Abbott through narrow, sinister eyes that showed no trace of humour. They were hard eyes, cold eyes, eyes that had seldom seen anything to inspire joy or hope. The only emotion that might possibly come from them was a controlled hate, an undisguised loathing. His shirt seemed to be an animal hide of some sort, sections of it still boasting traces of matted fur, other sections worn thin, hard and cracked. His pants were rough, uncomfortable-looking things covered with grease and dirt, torn at the knees and held up with a length of coarse rope.

The woman had no hair, but if she was capable of any vanity at all, she probably wished she did. Her entire scalp was the rough, scabby skin of the short one, a condition that extended to her forehead and down one cheek. Abbott thought of lepers, of the plague that had ravaged fourteenth-century Europe. Her clothes hung on her like a scarecrow's, torn and patched many times. Like the short one's trousers, her clothes were made of a coarse fabric, stained and greasy. The twine that held them up was cinched so tightly at her waist that he thought he might be able to touch fingers and thumb around her. Her expression, too, was cold and bitter, devoid of joy.

He waited almost half a minute before he spoke to them again, and when he did he was angry at the way his voice cracked, showing the fear he was trying desperately to keep under firm control. "Who are you?" His gun, held tightly in a hand that trembled very slightly, would do him absolutely no good with these people, he was sure.

"I am The November Man," the short one said, and his voice was a scratchy thing that sounded like it came from a diseased larynx. It was almost a drone, like the steady rumble of the engine, and Abbott had to strain to hear it.

"What do you want?" Some part of his brain told him he hadn't received the answer he wanted to his first question, but he let it slide for now.

"A chance to live life as you know life." The November Man said, then lifted his right arm slightly, to indicate the hooded figure beside him. "To be."

That, too, was not the answer Abbott had wanted. Perhaps he wasn't asking the right questions. He took another look around the wasted landscape, still saw no other life, no change.

It was hunger, he decided, that gave them their strained expressions. None of them looked like he or she had had a decent meal in a long, long time. It might, he thought, be difficult to relax when you were starving.

His fear was slowly dissipating, but his caution had not abandoned him. He still watched the three ethereal figures, was still alert to movement on either side of him. He might not be able to shoot them, but if that were true, then it should hold true that they couldn't hurt him either. He lowered the gun from its dead aim on The November Man's forehead, but left it in plain sight, still dangling from his fingers.

"That is true," The November Man said. "We cannot hurt you."

It might be so, it might not. For the time being, Abbott decided he'd accept it. They didn't seem to have weapons themselves, although there was no telling what the hooded one might have beneath the folds of his dirty robe. Still, how could a ghost hold anything anyway?

"You drive through dead lands," The November Man said. "We would ride with you."

Abbott had the distinct impression such civility came with difficulty to the short man who had identified himself in so peculiar a fashion. There was a barely discernible undercurrent of emotion to his monotone; anger, perhaps?

"Unless you can help me get out of here," Abbott said slowly, coldly, "no." He wasn't sure why he had adopted a *quid pro quo* position, but he had, and he was willing to stand by it.

"We *will* ride with you!"

The woman's voice was high-pitched, a shriek like shards of glass scraped across sheets of tin. There was no mistaking the anger in that voice.

The November Man did not look at her, nor at his other companion. His milky eyes remained fixed on Abbott, and the intensity of their gaze prevented Abbott from even looking at the others. It was strange, very strange, to be able both to see The November Man's eyes, and to see through them to the wastelands beyond.

"You do not need our help to escape," The November Man said in the same flat monotone. "Except to let us ride. That is all you need do."

"I let you ride, and I get out?"

"Within the hour of agreement," The November Man told him. Then, with a trace more emotion, something that might have been anger but might just as easily have been humour, "You're not really here, you know. But you can't leave until you grant our request."

"If I'm not here, then why should I?"

"Suit yourself," The November Man said with a barely perceptible shrug of the shoulders, "but consider this: you're not really here, but you're not really there, either, are you?"

"I don't have time for riddles."

"All you have now *is* time, George Abbott."

Abbott's eyes widened, and he almost dropped the handgun. For

one brief second he thought the three figures flickered out, then back into existence. "How did you know my name?" His voice carried no power.

"We *will* ride with you!" the woman shrieked again. "We *will!* We *will!*"

"We will," The November Man said slowly and calmly. "Whether now, a year from now, or a thousand years from now. We will ride with you. The hour begins then. Because, you see, *we* aren't really here either."

Abbott wasn't sure how he understood exactly what The November Man meant, but there was no doubt in his mind that this weird trio saw him *and* saw through him in precisely the same fashion as he perceived them. If that were true, then he might exist here for a thousand subjective years, refusing to let them ride with him, while, presumably, no time at all passed in his world. Or theirs. It might explain the fact that there was no less gasoline in the car than there had been when he first started driving here.

A thought came to him suddenly, and he wanted to act upon it. "Give me two minutes," he said, and before they could respond, he slipped behind the wheel, closed the door, and shifted into reverse. He backed up almost five hundred metres, still careful not to leave the road, glancing occasionally at the odometer. It didn't move. But that might mean nothing. It was *forward* motion that counted.

He hadn't gone twenty metres when he realized the odometer was not moving, not recording so much as a single centimetre of his progress. When he pulled to a slow halt, not where he had been while he faced the three ghosts, but directly beside them, the odometer still hadn't moved. He didn't really know what it meant, but it seemed to indicate that he might not be going anywhere at all. Perhaps The November Man was right: none of them was really here, but they weren't where they were supposed to be, either. He didn't understand how the car could function, or move at all, but then, wasn't it also true that he didn't understand even one thing about this nightmare?

The November Man didn't have to bend down to see through the car's passenger side window. His eyes met Abbott's through the glass, and they regarded each other in silence for a few seconds.

"The hour starts when I agree?"

The November Man gave one short nod of his head, and it didn't surprise Abbott in the slightest that his words had been heard through the glass and above the sound of the engine.

"Get in," Abbott said, and looked at his watch.

2:45:21. 2:45:22. :23.

If The November Man had told him at that instant that black was

white, George Abbott might have believed him. He tossed the revolver onto the dash.

They had no need for doors, for openings to permit them to enter his car. They simply drifted through, assumed their positions, and sat patiently like fares in a cab. How the vehicle might carry ghosts, Abbott didn't know. Perhaps if they wished it, it was. In any event, he didn't feel like trying to figure it all out. He had the feeling his hour might stop if he did.

"Drive," The November Man said.

He shifted into drive, pulled the car off the shoulder and onto the road, force of habit causing him to check the rear-view mirror first. There was nothing there. Absolutely nothing. He almost stopped, shocked, but caught himself before applying his brakes. Fascinated, he glanced from road to mirror to road to mirror as the world disintegrated behind him. Perhaps five metres behind the car, the pavement, the sand, dirt, rocks, even the charred tree stumps, simply dissolved into nothingness.

"At the speed you were traveling, you were exactly three hours and two minutes from Edmundston," The November Man said, and Abbott turned his attention in that one's direction. "When our time is up, you will be one hour closer."

A dozen legitimate questions were ricocheting through Abbott's mind, but he could ask none of them. And he knew that if he did, The November Man would either refuse to answer, or claim ignorance. But that didn't matter. He glanced at his watch. 2:46:54. The hour was passing. When it was up, he would be an hour closer to Edmundston than when he had entered this weirdness.

He looked in the rear-view mirror, forcing himself to ignore the dissolution of the world behind them, concentrating instead on the diseased woman and the hooded figure. It was then that he noticed that there was a distinct difference between them, and between each of them and The November Man, too. Each existed in varying degrees of clarity. The hooded figure was an extremely faint image indeed, while the woman was a little more distinct, her features easier to make out than even the folds in the other's hood. The November Man himself was more solid than either of his companions, but it was only at this range that Abbott was able to make the distinction.

"She is The Barren Woman," The November Man told him. "She is from a time not very far in the future of this reality's now. I am from a time not very far in the past." He paused, and Abbott could feel those milky eyes turning toward him. "Our companion is The Dead Man."

"And *he* is from?" Abbott asked sarcastically.

"He hasn't told us," The November Man said, oblivious. "It is well

known that dead men do not speak. I must assume that was as true for the Age of Fools as it is for the Time of the Death."

The November Man's voice was still a flat, inflectionless drone. Thus far, only The Barren Woman had shown any flash of real emotion, and Abbott wasn't sure he wanted to see any more of that. He was glad The November Man was their spokesman.

They rode in silence for two minutes; Abbott knew it was two minutes because he checked his watch three times. 2:49:58. The odometer, too, was recording distance, and he was sure the gas gauge would soon begin to edge downward.

"After the next turn, drive exactly three-tenths of a kilometre, then turn right off the road," The November Man said.

"Why?"

"There are things you have to see."

"What things?"

"You'll see," The November Man said enigmatically.

"Drive!" The Barren Woman shrieked.

The Dead Man said nothing.

He didn't want to leave the one familiar thing in this aberration of a world, didn't want to take the turn at all. As they approached the spot that The November Man had mentioned, he found himself perspiring slightly. But he had already accepted the ground rules, and so at the first tenth of a kilometre he began slowing, and at the three-tenths mark he pulled slowly off the road and into the wastelands. Not until he was certain the car wasn't losing its traction in the loose sand—or worse, sinking into it—did he realize he was holding the steering wheel in what amounted to a death grip. He relaxed, drove as straight as he could, and waited for further instructions. Behind him, the world disappeared just as it had earlier, and when he looked to his right, he saw with a start that not fifteen metres away, there was nothing. Absolutely nothing, for as far as the eye could see. No sand, no rock, no charred stumps, just empty space much like the sky in his world, but without the clouds. Only the world ahead and to his left still had any solidity at all. And if he looked to his left and back four or five metres, the world there was gone too.

He panicked then, and applied the brakes without concern for traction or movement. "The road!" he shouted at The November Man. "The road is gone!"

"Drive," The November Man said, without inflection.

"Drive!" The Barren Woman shrieked.

"Goddammit, the fuckin' *road* is gone!" How am I going to get back to it?"

The November Man had been staring through the windshield, at hills

perhaps a ten- or twelve-minute drive away. Now he turned his head, slowly, and regarded Abbott through milky gray eyes. "We have less than one hour," he said slowly, with barely controlled anger. "We, not you. In one hour, regardless of where you are in this reality, regardless of what you are doing, whether you are in this car or not, you and it will return to that exact spot where you would have been one hour after you left your reality. You will be moving at the same speed, going in the same direction, and you will not have to worry about other cars, in either direction. The road will be deserted in that section, and no one will see you. Your world will return to normal, and you will have nothing to fear. That's what will happen for you. But we have less than an hour." His eyes met Abbott's unflinchingly, and even though Abbott could see through them and into the nothingness five metres beyond, he still saw steel in that gaze, saw hate in its intensity. "Now drive this wretched thing into the hills. *Drive*, you bastard!"

"*Drive!*" The Barren Woman shrieked.

The anger drained out of Abbott almost immediately, replaced by fear he had to fight to control. He checked the rear-view mirror, saw the blazing eyes of The Barren Woman fixed on the back of his head, madness and rage battling for dominance, and lifted his foot from the brake pedal. He eased it onto the accelerator, and the car resumed its forward movement.

One hour. Less. He checked his watch. 3:02:11. *Less than forty-five minutes. If these freaks are right, all you have to do is last the next forty-five minutes. That's all. Forty-five minutes.*

It would be a lifetime. But they knew his name, they knew where he was going, and he suspected they knew an awful lot more. He didn't, really, have any choice.

The hills seemed suddenly to rise further into the sky than he had thought possible when seeing them from the road, and within five minutes the car was ascending, Abbott carefully weaving his way between rocks and charred tree stumps, avoiding holes and peculiar mounds of sand.

An occasional wisp of fog brushed across the windshield, an inexplicable thing to Abbott, since there was no water, no vegetation, and didn't fog accumulate in low-lying areas? But this was a nightmare of incalculable proportions, and none of the things with which he was familiar held true here. That continued to be so as the ascent continued, more steep with each passing metre. The mist got thicker, and sometimes he thought he could see a face here and there, always gaunt, always with dead, hungry eyes. Then there were small groups of shadowy figures, ragged and dirty, staring at the car as it passed through the mist and beyond them. Men, women, children, none of

them had any more substance, could have weighed more than forty kilograms. Tops.

The scenes quickly became more complex as the mist became thicker. Abbott could see no more than a dozen metres in front of the hood, just enough to know that they still rolled across sand and rock, but he could see crowds of emaciated, diseased people staring at the car, at him. The longer he drove, the more certain he was that not all of these visions were from one time, just as *The November Man*, *The Barren Woman*, and *The Dead Man* were, according to *The November Man*, from different eras and places. There were subtle differences in clothing—although all were ragged, dirty—in features, and in the haphazard construction of ephemeral shelters. And with every millimetre of ground covered, the scenes of misery came more frequently, until Abbott felt as if he were driving through a crowd of millions, from a thousand different times. Indeed, sometimes he drove straight through huge knots of people who seemed unaffected by the car's passage, who seemed to pass through the metal and into the car, through *him*, and disappear out the back. He couldn't even see the hood of the car now; the visions were simply too thick.

3:17:49. Less than half an hour.

Even in the chaos of overlapping scenes, he could pick out individual scenarios. He saw a woman holding the corpse of a child, its limbs frozen in rigor mortis, its skin flaked and scabbed, its eyelids oozing what might have been pus, or blood, or neither. He saw a crippled man trying in vain to beat off two crazed dogs as gaunt as their prey; he saw starving adults eating the flesh of their dead children; he saw the weak die at the hands of the strong, but the strong seemed only marginally more so than their victims. He was even less sure where he was steering the car now, because the mist had thickened still further with faces, bodies, corpses, mutations, until it had become a swirling, ever-changing soup of ghostly humanity and fog. The ruins of stately buildings overlapped the ruins of shabby huts overlapped the ruins of humanity overlapped the ruins of the world. Ruins of everything. There was nothing in the swirling, ever-changing scenarios of the mist to bring a smile, to inspire hope, to impart peace of mind. There was death; there was destruction. And there was despair, thick and all-encompassing, hanging like the hand of doom over everything. He felt it as surely as he felt the steering wheel in his hands, as surely as he had felt humiliation and despair of his own when he had learned about Ellen and Hainsworth. The emotion of these wasted souls might even be his own. Indeed, as he drove, he had difficulty sorting out what *he* was feeling, and what they were sending him. He wanted to cry, as much for himself as for them, but the release wouldn't come. Just as, apparently, it wasn't going to come for them either.

It became overwhelming, unbearable. So much suffering, so much death. He wanted it to stop, the fog to dissipate, the images to disintegrate, but they did no such thing. There were more, suddenly, image upon image upon image, all of which he could see through to yet another. They continued to swirl over the hood of the car, through it, through him, and only disappeared once the car had passed them by, dissolving like fiction into the nothingness that trailed behind. Or so he assumed, because in his rear-view mirror he could no longer see the dissolution of the world . . . just the fog and the ghosts it encompassed. Sometimes, it seemed one or two of the ghosts actually stayed in the car, were carried by it a short distance before they passed through and beyond. His three passengers took no notice.

It got thicker yet, more people, more pain. An unending tidal wave of pain.

Thicker still, swirling, shifting.

Thicker.

And suddenly, when he was no longer able to fend off the need to scream, when the muscles in his shoulders and the back of his neck throbbed with unrelenting tension, the fog disappeared. Simply disappeared. One instant Abbott was ready to leap from the car and take his chances wandering through the dead lands; the next instant the car had crested the hill and was beginning a gentle descent. Abbott would not have thought it possible to welcome the desolate sight of sand and rocks and blasted tree stumps under a lifeless sky, but he did, he did. Relief washed over him, but it couldn't take away the emotion he had felt, the searing, all-encompassing despair.

"None of those people exist now," The November Man said in his droning monotone, "but they once did, just as you saw them."

Abbott checked his watch. 3:19:28. Had that whole thing really taken less than two lousy minutes?

"Turn left here," The November Man said.

Abbott turned. Without thought, without argument. Numbly. The hour was sliding into the past, and that was enough. More than enough; it was everything.

The dissolution of the world shifted from behind and to his right, to behind and to his left. He wondered if the entire thing would disappear if he drove long enough and far enough, until the car came to a halt on a fifteen-metre square of sand and rock, and he could stare into the emptiness around it. Or would it reappear, if he chose to drive toward the emptiness? He decided it was a point for debate, and not one to be disproved.

3:20:53. Twenty-five minutes left.

"You haven't even asked how this came to be," The November Man

said, and in his voice Abbott thought there was a hint of anger, of accusation.

"I'm not even sure it *is* this way," Abbott said angrily. "I could be insane."

"I assure you," The November Man said, "it is. And you are."

The November Man's calm assurance, his monotone, chilled Abbott to his core. Had he been safely home in Fredericton, arguing a point with an adversary who posed him no threat, he might have insisted that his opponent couldn't have it both ways. But not here, not now. The November Man most assuredly *could* have it both ways.

"How did this come to be?" he asked wearily.

The November Man ignored the question. "Up ahead," he said, and Abbott was certain he detected contempt in the drone, "another two kilometres, there is a place of magic and visions. We three came into this place at that point. We will leave you there."

"I don't need magic and visions," Abbott told him. And he didn't. The muscles in his neck were still tight, still painful, and the sensations that had washed over him while he drove through the fog were still in his mind, still fresh and clear, tearing tiny emotional strips from him each time he thought of them.

"Drive!" The Barren Woman shrieked.

Abbott drove. It wasn't what he wanted to do, but he drove. What he *wanted* to do was stop the car, drag The Barren Woman from the back seat, and pummel the living piss out of her. If this really was some sort of cosmic history lesson, he failed to see what purpose she served by shrieking only a single word at him every time he raised an objection. But such a thing was impossible; in any event, at this place of fucking *magic* and fucking *visions*, she would leave—or so their spokesman had said—and that was more than enough to keep him driving. He drove.

The place of magic and visions came into view in less than two minutes, and even though none of his unwanted riders said a word, Abbott knew it was, indeed, the place. A black circle perhaps thirty metres in diameter encompassed something that might have been an enormous sheet of glass the colour of cigarette smoke in a dimly lit bar. Even though there was no sunlight to reflect off it, there was a bright glare from its surface, and Abbott had to squint to see it. The circle itself was perhaps a metre thick, as charred and black as the tree stumps. The whole thing looked like a bomb site, except that where the crater should have been, there was that brilliant sheet of blue-gray glass. The sight of it washed away the last remnants of emotion that the ghosts in the fog had caused him, replaced those emotions with a primal fear that spread through him like a plague. He didn't know what this thing

was, but it frightened him. And, too, it called to him, made him want to get closer, get further away, get closer, an endless tug of war inside his brain. He felt like one of the man-apes from the opening scenes of *2001: A Space Odyssey*.

He braked the car to a halt some twenty-five metres from the brilliant circle, and this time The Barren Woman did not shriek at him to continue. He took a quick look into the rear-view mirror, and saw her milky eyes fixed on the circle, her already thin features strained and tight. She, too, seemed afraid, a fear inspired by madness, by knowledge.

This place, Abbott knew as he turned his attention back, would not disappear behind the car. Not his car, not anyone else's. This was forever, this thing.

"The Well Of Life And Time," The November Man said, and his monotone was soft, barely audible. Without opening the door he began to drift through it, followed immediately by The Barren Woman and, an instant later, The Dead Man. They moved slowly toward the circle, then paused and turned to look back at Abbott, still sitting behind the wheel.

He didn't want to join them; he wanted to turn the car around and drive into the nothingness. But that, too, frightened him, and on some deep emotional level he couldn't escape the fact that all of this *bad* happened, that it had led to *this* point, and that *now* was the moment of fulfillment. He really, in the end, had no choice. He got out of the car.

Perhaps it sensed his presence; perhaps the car had acted as a shield, muting the emanations; whatever it was, the moment he got out of the car he felt an almost overwhelming sense of pain, of despair, of hate and hunger and death. It was a physical assault, pounding at his brain and his eyes, washing against his skin and seeping through to the deeper cells of his body. He shielded his eyes, managed to focus on the ghosts, and they waited still, staring at him, making no further move toward the Well. Even when he took his first steps toward them they waited, watching.

They moved together as a quartet, The November Man in the lead, George Abbott bringing up the rear. There was still fear in him, and he had instinctively taken the fourth position, as if to use the ghostly trio as shields. But he could still see through them to the blue-gray surface beyond, could still feel the waves of raw emotion washing over him.

When they came to the edge of the charred circle, they stopped. The circle, Abbott saw, was rough-edged, inside and out, as if someone had taken a canister of black lime and laid it down, much the way the Little League foul lines and batter's boxes of his baseball youth had been drawn. He wanted to scuff his toe in it, as he had done superstitiously each and every time he'd crossed such a line when he was nine years old.

The glare from the surface of the Well Of Life And Time was no less brilliant than before, but Abbott was becoming used to it. It no longer pained his eyes, and the waves of emotion no longer beat against him; instead, they seemed to encompass him, to draw him softly into the web of pain and despair, until he felt those same things himself, without truly knowing why. And more, he felt, somehow, as if it were right and good, and he *wanted* to be part of that wave.

What the ghosts felt he had no idea.

The November Man turned to look through his companions, to focus firmly on Abbott's eyes, and Abbott thought it took a tremendous amount of strength for him to do so.

"Your hour is nearly over," The November Man said softly, "but perhaps ours is just beginning. You have only to watch, now, and your part of the bargain is fulfilled."

He turned away then, and took his first step into the black circle, another to carry him through, and then he was standing on the surface of the Well Of Life And Time, one foot in black, one foot in blue-gray. And the surface of the Well began to shift.

It's a fluid! Abbott thought, and was amazed. When The November Man took his second step, and stood fully within the black circle, Abbott expected him to drop like a stone through the surface, but that did not happen. Not, he knew, because The November Man was a ghost, but for some other reason, some reason he couldn't begin to understand.

Tendrils of blue-gray rose from the Well, snapped off, began to grow over the outlines of The November Man. It was as if he had suddenly acquired substance, that there was somehow purchase for the spreading tendrils. The fluid spread up his legs, the motion of his movement not disturbing the process at all.

There was a stronger outpouring of emotion now, so strong that Abbott had to take a step back, to brace himself against it. But he did, his eyes never leaving The November Man and the glistening filigree that had extended to the ghost's waist. The November Man reached the exact centre of the circle, and turned with exaggerated slowness to face Abbott across the quicksilver expanse.

It's his soul, Abbott thought, and knew he was right. *That's why the stuff clings to him.* Even as the thought came to him, he knew that while "soul" might be the right word, it wasn't necessarily defined in the usual fashion; it was something that went beyond theology, beyond humanity. It was primal, yet advanced far past his capacity to understand. In the end, it simply *was*.

The visions started when the blue-gray tendrils reached The November Man's neck. Wisps of smoky fog streamed from the mist that was

his eyes, became a series of transparent clouds that extended out over the surface of the Well. But where the visions on the hill had been all-encompassing, generic in nature, these were tightly focused, intensely personal. They were The November Man's story, from this moment backward, moving in rapid-fire succession back through the trip in Abbott's car, to the waiting for Abbott's arrival, to The November Man's appearance in this reality to find The Barren Woman and the Dead Man waiting for him. Back, to the short man's past life, when he had been impelled by something within him to find the Well Of Life And Time, back further to his wretched existence in a world without hope. Back. Life in his dying tribe; foraging for food in a land where the food itself was dying its own inexorable death; life as a young adult who had known absolutely nothing of what Abbott thought of as childhood; the childhood itself, spent in hunger and battle with the isolated and scattered remnants of other tribes, where a handful of skinny white grubs scooped from the base of a dying tree was infinitely more important than the life of an adversary, a friend, a relative.

The ghostly images spread across the surface of the Well, settling, crushing atop one another, gradually sinking through the surface as other visions accumulated atop the whole. They had substance and character, these visions, held in their flickering outlines all the elements of a life. One life. The November Man's life. But they represented much more, and Abbott did not miss that meaning. Take The November Man's life, multiply it by thousands—no, hundreds of thousands, or millions—and one had the totality of despair that was The November Man's world and the world that had preceded him. A hopeless, starving, desolate history of mind-numbing proportions.

The visions continued, from the later stages of childhood to the earliest, through infancy and finally, inexorably and irrevocably, to a birth The November Man could not possibly remember.

And it was over. Without sound, without drama. It all disappeared, the crushed visions, the filigree that had risen from the Well's surface, all of it. The spreading tendrils had covered the very top of The November Man's crusted scalp at the instant of his shadowy birth, and that had been his story, in its totality. The surface of the Well was smooth, was brilliant, unrippled. It had taken The November Man back to his time, and had told his story in less than thirty seconds, thirty seconds that were a lifetime worth no more than the time allotted, cared about by no one, watched by two ghosts and a displaced cuckold.

Abbott wanted to cry; indeed, he had to fight the upsurge of emotion that came from his personal Well Of Life And Time, and he didn't even know why. The November Man had not endeared himself in any way to Abbott, had displayed nothing but contempt and anger, yet

Abbott wanted to cry at the ghost's life. It was stupid; it was ridiculous. It was real.

The Barren Woman took her first step into the black circle, then a second, and a third carried her onto the blue-gray surface. The first tiny tendril of the Well reached up, was joined by another, and then two more, and by the time she had reached the centre she was covered to the waist. She turned, as had The November Man, and her eyes met Abbott's. There was still madness and rage in those milky circles, and even though she had no substance and her insanity no power, Abbott nonetheless felt something cold slither along his spine. Almost, he expected her to shriek "Drive!" at him, but she said nothing.

The visions came out of her eyes, too, ephemeral and rapid, like steam from a kettle, and they settled over the Well's surface gently and slowly. But Abbott knew that that was visual deception; he knew the visions were moving at a tremendous velocity, that they only *seemed* to waft cautiously toward the gleaming surface of the Well.

It wouldn't have mattered much anyway, because The Barren Woman's visions were not those of The November Man. She came from this reality's future, The November Man had told him; therefore, she had no past. She had only future, and it was a dead end. Literally. As far as Abbott could tell, there was her, and only her. She traveled through a landscape not at all dissimilar from the one he had first seen when he drove into this nightmare, the last of her tribe, indeed, the last of the entire vast tribe that had been humanity. How long ago her last companion might have died he had no way of knowing, but if the growing madness that danced in the eyes of her vision-images was any indication, it had been a long time indeed. Whether she was The Barren Woman because she lacked reproductive capabilities or because there was no one to make use of those capabilities was irrelevant: she was the last of her kind. Her story started when she left this reality, and ended very shortly after she reentered her own. Abbott saw her die, wasted by hunger and disease, simply too weak one morning to rise from slumber and continue the futile pursuit of life. He didn't know if she saw the vision herself, but that, too, was irrelevant; even in lunacy she knew who she was, what she represented, and that her time of death was near.

The tendrils covered her diseased scalp, and she, too, was gone, back to her time of barren need, back to the end. Again Abbott wanted to cry. He tried to hate The Barren Woman as he had each time she had shrieked her shrill, one-syllable command, but it was impossible, now, to feel anything but a crushing, hopeless sense of loss. He fought the urge to cry, fought it hard and at every turn, and in the end he won. Because he was George Abbott, and he had never permitted any situation to master him, to leave him helpless and futile.

There was only The Dead Man now, and as he had always been a little behind the others, so he was now as well. The Barren Woman had taken her first step toward the black circle as soon as The November Man had disappeared, but The Dead Man took no step, made no movements, indeed was so faint at this moment that Abbott thought he might even be disappearing before stepping into the Well. But no, his outline softened no further; he simply stood a metre in front of Abbott, staring at the Well's brilliant surface, as if pondering his options.

The moment stretched to two, already more time than had been granted The November Man and The Barren Woman combined. Where he might have glanced hopefully and expectantly at his watch a half-hour earlier, Abbott felt no inclination to do so now; he didn't even think of it. He waited, silent and shaken, for The Dead Man to move. The Dead Man didn't.

It came to Abbott in a flash of insight almost as blinding as the surface of the Well Of Life And Time: The November Man had come from the past, The Barren Woman from the future. But both either had existed or would exist. They had stories; they represented what had been and what would be. But The Dead Man had no history, no future. He represented God-only-knew how many people who never were, who never would be. He was humanity. He was The Dead Man. Perhaps he wouldn't move onto the surface of the Well because he had never existed in life or time. But he was *here*, wasn't he? So the *possibility* of existence was real.

And then The Dead Man moved. One step. One slow step. Another. Another. He touched the edge of the black circle, took another step into it, another to the inner edge, and finally one more onto the surface.

Abbott was stunned. He took a step of his own, this one backward, away from the Well. He wanted to turn and race for the car, but the mind-numbing fear he had experienced when first leaving the car had returned, had sunk its claws into his heart and mind, and would give him no leeway. Until his dying day he would not have been able to explain exactly how he knew, but in the pit of his stomach, in the passageways of his brain, and in the most secret chambers of his heart he knew what he was going to see. Not all of it, because he could not have predicted the unknowable; but the end, yes, of that he had absolutely no doubt.

Not even the most minute of tendrils rose from the placid, brilliant surface of the Well Of Life And Time to wrap around The Dead Man's feet. He made his slow, inexorable way toward the centre, and when he turned to stare at Abbott from beneath the hood, time might have come to a grinding halt for all eternity.

The Dead Man reached up and pulled back his hood, slowly. Abbott didn't know what he'd been expecting—a bleached skull, perhaps—but it wasn't the smooth, utter blankness that was The Dead Man's face. No eyes, no mouth, no cheekbones, nothing, just an oval of featureless gray flesh, like an artist's canvas awaiting the first stroke.

The blankness began to shift, very slightly, then a little more quickly, and suddenly, remarkably, George Abbott was staring at a perfect replica of The Barren Woman's face. But only for a second. The face shifted again—another woman—again—a man—again, again, again, shifting more and more quickly, gaining momentum. Each face stayed only an instant, and sometimes the shifts came so quickly Abbott wasn't even sure they had registered. On and on, no two repeated, the common threads being only gauntness and a never-changing despair in the eyes.

Somewhere in the faces—it might have been the hundredth or the thousandth, he had no idea—he thought he saw The November Man, and the perfect symmetry of the thing astounded him. But only for an instant, because the faces continued, rapid-fire, to cross the shifting features of The Dead Man.

Abbott had no idea how long it lasted, but when he detected a subtle shift in the expressions, a better-fed appearance and eyes that weren't narrowed by suffering and pain, he knew the end couldn't be very far off.

Nor was it. The faces became those he might see anywhere in his own reality, and some even flashed the barest traces of a smile. And then, like a cassette reaching the end of its tape, lacking only the high-pitched beep of completion, the last face, staring unseeingly at him across the expanse of the Well Of Life And Time. Of them all it lasted the longest—perhaps three seconds, but those seconds were an eternity.

Hainsworth. Hated, despicable Hainsworth.

Then it faded, and The Dead Man stood at the centre of the brilliant Well, his face once again a blank slate.

Abbott had known it was coming, but it was still a mind-numbing thing. He turned, walked slowly back to the car, and when he was inside it, did not have to look to know that The Dead Man, too, was gone from the Well Of Life And Time. He reached out, plucked the revolver from the dash, and stared at it as if he had never seen it before.

He looked at his watch. 3:43:12. :13. :14. A few seconds more than two minutes left. :17. :18. :19.

She was The Barren Woman because no seed would ever grow in her; he was The November Man because humanity's year was near its end; and the final ghost was The Dead Man because George Abbott had killed him. It was all very simple.

3:43:38.

He wondered absently, without really caring, which of Hainsworth's descendants would, through never existing, give reality to this nightmare landscape. Would he or she prevent this through action, or inaction? And what action or inaction would it be?

But none of that mattered. Because it wasn't repugnant Hainsworth who was responsible for this, it was betrayed George Abbott, sitting inside his idling car and staring at a pistol with six bullets in its chambers. And one of those bullets, just one tiny piece of lead, made desolation a reality. In his hand this very instant he held humanity's future.

3:43:59.

He thought of Ellen with Hainsworth, as he had thought of them a thousand times already, and the old anger came bubbling back to the surface, hot and painful, and he tasted bile in the back of his throat. So what if he killed the sonuvabitch? So fucking *what*? It wasn't as if George Abbott was going to live in this hell. And wasn't there a delicious kind of satisfaction in knowing that, regardless of cost, Hainsworth's progeny and his entire line had been eliminated from human history?

There was.

But it was twisted logic, and he knew it. Yes, he was the victim. Yes, he had been betrayed. Yes, as far as he was concerned he had the right to kill the bastard. And yes, no one would ever know what the murder of Hainsworth would mean.

3:44:30.

Less than one minute, now, and he would be tooling along the highway, on his way to Edmundston and a date with destiny.

3:44:51.

Thirty seconds left.

Suddenly he was tired, very tired. Tired and heartsick. And he knew what he was going to do. He didn't really have any choice, did he? If nothing else, he thought, he had the satisfaction of knowing that Hainsworth's descendants were disagreeable little bastards.

3:45:05.

He looked one final time at the blinding surface of the Well Of Life And Time, then tossed the gun up onto the dash. He shifted into drive and braced himself for the transition from zero to . . .

. . . 3:45:21.

The world as George Abbott knew it came into being on a westbound stretch of the Trans-Canada Highway, about an hour past the Mactaquac Dam. It came into being at ninety-eight kilometres an hour, with the Saint John River on his right and the colours of late autumn splendour on tree-covered hills to his left.

He took his foot off the accelerator and gently touched the brake. He drifted smoothly to the shoulder, stopped, and shifted into park. He checked the odometer and the gas gauge, not really giving a damn but knowing both would register what they should; they did.

He sat for a long time, staring into the west where Edmundston sheltered the bastard Hainsworth. Unbidden, there came to his mind something he had read years before, then forgotten until this very moment. According to Theodore Dreiser, who was quoting a newspaper editor he didn't name, life was a goddamned, stinking, treacherous game, and nine hundred and ninety-nine men out of a thousand were bastards.

Abbott shifted into drive, spun the wheel hard to the left, and turned into the eastbound lane of the Trans-Canada. He took the revolver off the dash and tossed it onto the passenger seat.

The anonymous editor had been right, he decided. Absolutely and completely. Nine hundred and ninety-nine men out of a thousand *were* bastards, and really, Hainsworth was just one of that vast majority. Nothing more, nothing less. He and Ellen could have each other.

As he drove back toward Fredericton, the thousandth man was beginning to feel a little better. ♦

Letters to the Editor: I

Dear Ted:

Concerning the recent decision to have submissions accompanied by 25¢ in coin or stamps I can only say that I am in complete agreement. Too many hours with no return have been put into the reading of manuscripts and I applaud your decision.

Also, should any of my submissions be accepted by your mags, I would rather not have the charge refunded to me. The story still had to be read and time still had to be spent in that reading. In other words, don't refund the charge to me if any of my submissions are accepted because I'll be forced to use another stamp to send it back.

Augustine Funnell
(July 1975)

Takeover

Dwight V. Swain

When Dwight Swain died in 1992, a writing career spanning more than fifty years came to an end—but he did leave behind a small inventory of unpublished science-fiction stories, including the one that appears below.

Dwight was a regular contributor to *Amazing Stories* and its companion magazine, *Fantastic Adventures*, in the early 1940's. He published occasionally in the SF/fantasy field thereafter, but became better known for his work with educational films and his books about the craft of writing, including *Techniques of the Selling Writer* and *Creating Characters: How to Build Story People*. In 1991, he was named a grand master by the Oklahoma Professional Writers' Hall of Fame.

Aging was a worrisome thing, John decided. Not just on account of the speed with which your mind seemed to lose its edge, or the way you ached for what might have been when you looked from your wife to your lab assistant. Worse by far was your vulnerability to self-doubt. Blacks and whites shaded into gray. You came to see both—all—sides too easily, on every question, till uncertainty rode like an albatross on your shoulder and you lost your capacity for decisive action.

Like here, like now. Your head told you to force the issue, before Redding left. But still you hung back, hesitating, cringing at the thought you might be wrong and so hurt someone's feelings.

So Redding rose and took his leave, striding sure-footed down the walk to the Ferrari. Briefly, bleakly, John envied him his ruthlessness, his resolution. But that was the kind of thing you couldn't do anything about, any more than aging or the limitations of your own talent. You simply had to make do with what God gave you.

It was on that thought that John turned back to the three women.

They were an oddly assorted group: Orpha, his wife, loose-skinned and lumpy as an aging hippopotamus. His lab assistant, Sybil Pellegrini, brisk efficiency in a cool blonde package. Astrid Undahl, Orpha's pleasant-faced, gray-haired social worker friend, aglow with professionally nonjudgmental cordiality.

Yet now that he was alone with them at last, he found himself at a loss as to how to take hold of the problem.

Miss Undahl stepped into the breach: "You're upset, Mr. Greer. . . ." John grunted. "You're so right."

"Perhaps if you could verbalize it . . ."

Her manner irked John even more than usual. "It's very simple, Miss Undahl. I object strenuously to being played for a patsy."

Miss Undahl's eyes stayed round and innocent as blue marbles. "I'm afraid I don't understand."

"Don't put me on, Miss Undahl. A patsy is a dull-witted clod maneuvered into the role of scapegoat."

"Mr. Greer—"

"Don't put me on, I said!" John leaned forward angrily now, in spite of all his resolutions. "I'm the link that binds the three of you together. You're significant others where my emotional investments are concerned, if you want to put it in that gobbledegook you social workers love so well. So when you try to hold out on Redding, I'm stuck behind the eight ball too."

"But there's really no reason why you should feel disturbed, Mr. Greer." No slightest crack showed in Miss Undahl's poised politeness. "After all, Orpha and Sybil and I were picked as part of Dr. Redding's random sample—guinea pigs to help him check his work in computer-based medical diagnosis. You didn't have anything to do with it."

For a long, long moment, John sat silent.

"You're wrong," he said at last.

"What—?"

"The three of you are anything but a random sample. Redding's tests were my idea."

The looks that pulsed from woman to woman crackled with voltage. "Perhaps you'd better explain yourself, Mr. Greer," Miss Undahl said abruptly.

From the start, this had been the moment John had dreaded. But now he had no choice but to speak bluntly. Turning to his wife, he said, "Orpha, it starts with you. A month or so ago, after years of imitating an iceberg, you suddenly started wanting to play bed-bunny."

Orpha's face went scarlet to the wattles. Her hands moved in small, nervous, flapping gestures.

John switched his gaze to Miss Pellegrini. "Sybil, in addition to being

a paragon among lab assistants, you're the kind of woman men drool over. But as you made plain when I hired you, you don't play games—especially not with fifty-year-old geneticists. So I confess to being taken aback—that's a gross understatement—when you tried to corner me in the supply room a couple of days after my episode with Orpha."

It was Sybil's turn to go red. Her lovely lips moved, but no words came.

Hastily, John looked away. He had a feeling he was even more embarrassed than she was. To cover it, he focused on Miss Undahl. "As for you, Miss Undahl—I didn't even know your name was Astrid, till the night you asked me to pick up that book at your apartment."

Miss Undahl joined Orpha and Sybil in their confusion. John felt a bit less uncomfortable.

"I'm big on pattern," he observed. "When I run into a deviation, it grabs me. So I set it up to have Dr. Redding check you out at the Center, with the most comprehensive diagnostic exam he could program."

For a moment, there was silence. Then, in a choked voice, Miss Undahl asked, "What did Dr. Redding find?"

John shrugged. "More deviations. Diagnostic discrepancies."

"What kind of . . . discrepancies?"

John ticked off fingers. "Item one, a woman's heart normally functions at the rate of about eighty beats a minute. With you three, it averages out at thirty-five.

"Item two, the sedimentation rate in humans runs about ten millimeters in sixty seconds—higher in abnormal cases. You all hold steady at five.

"Item three, science has typed about fifteen hemoglobins. You three show one not on the list.

"Item four, all of you register exactly the same alpha rhythms on your EEGs. Ordinarily, that's found only in identical twins being tested under controlled conditions.

"Item five—"

"There's no need to go on." Miss Undahl was frowning. "What . . . what does Dr. Redding make of all this?"

"He doesn't—yet."

"You mean . . . ?"

"Redding's a computernik, not a physiologist. He still can't fit the pieces into a picture. But he knows something's haywire, and he's got an ego that digs out answers. That's why he came here today—at which point, you three sat here like so many clams, giving him the kind of yes-and-no bits a lawyer pries out of unfriendly witnesses."

Again the women exchanged crackling glances. "What else *could* we do?" Miss Undahl demanded.

"It's not as if there was anything we could tell him," Sybil Pellegrini echoed.

John snorted. "You could at least have headed him off in the wrong direction."

More glances. Acutely nervous glances, now.

"Are we to assume," inquired Miss Undahl, "that you too think we're concealing something?"

"Think, hell," John said tightly. "You're talking to a man who *knows*."

"Who . . . *knows* . . . ?"

"Of course." John gestured his irritation. "After all, I've spent my working years as a geneticist of sorts—a second-rate, corn-hybridizing, State Department of Agriculture-type geneticist, maybe, but still a geneticist."

"Go on."

"Give Redding one thing: he's nothing if not thorough in his testing. So, I can tell you definitely, you've got all forty-six chromosomes, just like any human. Your dominant genes are normal."

"But it's a different story with your recessive genes. They're of an unknown type. And your red blood cells have nuclei."

"And you interpret this to mean . . . ?"

"My guess is you're not really Orpha and Sybil and Astrid at all. They've been replaced by doppelgangers—copies, imitations."

A stiffness came to Miss Undahl's face. "You're being ridiculous, you know."

John shook his head. "I don't think so. On the basis of the evidence already at hand, I'd class you as of a different genus—assuming you fall within the limits of our classification system at all. The best term I can find for you is hybrids."

"Just as Astrid said, you're being ridiculous," Miss Pellegrini clipped tartly.

"Yes, ridiculous!" echoed Orpha.

"Maybe," John said, nodding. And then, as an automobile engine roared outside, he added, "At least, I certainly hope so, for your sakes."

"For our sakes?" Twin vertical lines appeared in Miss Undahl's brow. "Why do you say that?"

"Why?" John's lips pursed with the sourness of the moment. "Why, I hope so because that sound you just heard was unmistakably the engine of Dr. Edward Redding's Ferrari. My bet is that he's been hiding somewhere within earshot, listening to every word that's been said here."

They found Dr. Redding at the Center, and that in itself surprised John a little. However, the reason for his presence there soon became apparent.

"Every man wants something," Redding observed, once the group was seated. "In my own case, the issue is vindication. For years the medical profession has lectured me like a schoolboy on the variables and subtleties of sophisticated judgment involved in differential diagnosis. A succession of pompous idiots have told me how impossible it is to computerize the process. Actually, that's hot air. Diagnosis reduces itself to a matter of elimination, in the last analysis. It's a problem in programming; nothing more. Even this present project maintains data continuity in spite of the tangle of units I've tied together. No individual diagnostician could possibly correlate such a mass of information. Yet the results remain devastatingly accurate." He turned to Miss Undahl.

"Right, my dear lady?"

A pallor came to her face. "Then . . . you *did* hear . . ."

"Of course." Redding's smile was anything but warm. "Are you ready to answer my questions now?"

Miss Undahl didn't even make a show of smiling back. "What is it you want to know?"

"Do I assume correctly that the other species involved in this hybridization John talks about is alien—not of Earth? That the whole operation could be classed as invasion by infiltration?"

Miss Undahl lost further color. "True. One of our parent species is . . . not known on Earth." She gestured down Redding's attempt to interrupt. "But 'invasion' is totally a misnomer. Intellectually, scientifically, ethically—oh, in any number of ways, this other species is infinitely superior to the human race. The whole object of this current contact is to help mankind; to improve the breed, not to destroy it."

John scowled. "Why should we believe you?"

"For one thing, because this is neither a first visit nor a permanent stay. Humankind owes its progress to earlier meetings."

"What—?"

"Evolutionary progress is born of mutation, sudden chromosomal changes. Infuse alien blood into a species according to a precalculated plan, and you shape the whole course of the developmental pattern of that species."

John stared. "You've got to be joking!"

"On the contrary, I'm quite serious. It's the only logical solution to the problem of communication." Miss Undahl moved across the room, then back again. "You see, the nonhumanoid group that arranged this is . . . distinctly nonhuman in appearance. Just the knowledge that such beings have reached Earth would bring instant panic. But even if that could be averted, the two groups would still face impossible difficulties in exchanging information."

"Impossible how?"

"Have you ever tried to conduct a meaningful dialogue with a sporophore or a cockroach? Or even a mouse?"

"So communication's the roadblock," Redding interjected. "What's the answer?"

"You treat the problem as an exercise in data processing."

"Data processing?"

"Yes, of course. To achieve communication between species, what you need is a computer."

"But hybridization . . . ?"

"It provides the computer: a specialized biochemical unit—compact, brilliantly efficient, with a capacity that enables it to integrate the essential data from both species into a universe of discourse." Miss Undahl smiled, ever so slightly. "You're familiar with the device, of course. It's called the human brain."

John Greer had reached that point when shock no longer shocks. Now he could only cling to Miss Undahl's line of thought with the desperate intensity of a man aboard a bucking nightmare.

"The issue," she continued, "is merely to reprogram the genetic code to deal with the concepts of both species. It's as if you were setting out to establish an ideal heredity for a child before that child was conceived. To handle the assignment properly, you'd first have to decide precisely what characteristics were important.

"In our case, the hybrid must function within the frames of reference of both species. So the pattern we need is incorporated into the genes and chromosomes and a simulation of an individual human's body is built up, molecule by molecule. When the body is complete, it's fed an appropriate knowledge input from both cultures. The result is a being that appears human. But since that being is actually a cross, it's capable of full communication with either species."

"And that's what happened to Orpha and Miss Pellegrini?"

A nod.

"To you, too?"

"Yes. Nothing is taken away. That's a key point in the ethics of the process. To synthesize a being more limited than either of those from which you started would be equivalent to incorporating a tendency to heart disease or diabetes."

"Yet your personalities changed."

"Our attitudes toward sex, you mean?" Miss Undahl laughed. "That's true. But the loss was of conditioned inhibitions and guilt reactions, not hereditary traits. In essence, I'm still me, and Sybil is Sybil, and Orpha's Orpha."

"What was the logic behind the change?" Redding asked.

Miss Undahl shrugged. "Earth's population is in the billions. Simula-

tion is too complex a process to utilize on a mass basis—especially when a sexually passionate hybrid will pass on desired traits by normal propagation, much the way a nurseryman grafts an exotic tree onto native root-stock. It's a continuing process. Every few thousand years, contact is made and humankind is given a new infusion of superior blood through long-lived hybrids. The Piltdown, the Neanderthal, the Cro-Magnon—each of them represented another visit."

It was the kind of statement that puts an end to a discussion. John and Redding exchanged helpless glances. Then John turned back to Miss Undahl. "So?"

"So, please say nothing. Knowing everything, and knowing that our goal is humankind's own good, be content to keep our secret."

Again, John and Redding stared at each other.

"Our ethical standard is rigid, gentlemen," Miss Undahl pressed. "We won't use violence to silence you. Your course of action must be of your own choosing. But take my word, there's no way you can stop what's happening. If you try, your own people will be the losers."

Another moment. Then John nodded. "All right. I'll keep quiet."

"And you, Doctor?"

"Agreed."

Some of Miss Undahl's tension seemed to leave her. "Oh, I'm so glad! Believe me, you won't regret it."

Low heels thudding, she crossed to the door, Sybil Pellegrini close behind her. Orpha started after them, then hesitated, peering at John with anxious eyes. Never had he been more acutely conscious of the crinkled skin, the sagging flesh, the vacuous mind. The contrast between her and Sybil was almost more than he could bear.

But she was his wife. Both he and Sybil had lived up to that fact to the letter, no matter what might have gone on in their minds.

"Stick around, Orpha," he said. "You can ride home with me."

The door closed behind Sybil and Miss Undahl in the same instant. As if the latch-click were a signal, Redding spun about. "John! Hold Orpha!" He snatched up the phone receiver as he spoke.

John stared. "Who are you calling?"

"Security."

"But you said—"

"That I'd keep quiet?" Redding laughed harshly. "How naive can you get? This is a cataclysm!"

John strained to keep his poise. "What makes you so sure this—this invasion, or whatever you want to call it, is really a disaster, Ed?"

Redding put the phone down. "Are you out of your mind, John?" Let this go on, and Earth will end up with a totally hybrid population. Humankind as we know it will be doomed within a generation."

"Would that be so bad?"

"What?"

"A good many things are beyond me," John admitted. "However, as a geneticist, I do know hybridization and selective breeding. From what I've seen and heard here today, I think the human race stands to gain, not lose, by this crossbreeding."

"And I don't. Being in favor of it, to me, looks suspiciously like treason to our species."

John found himself having trouble with his breathing. "That's not much of a threat, Ed, when you throw it at a man who can deny that any of this ever happened."

Knots of muscle came to the hinges of Redding's jaw. "You're an old fool, Greer. This whole session's on tape. That's why I got you all to do your talking in this office." His eyes glittered. "Let me stop this thing, and they'll have my name in the history books for the next hundred years—maybe the next five hundred! If you think for one minute I'm going to pass it up, you're crazy!"

"But the damage—"

"To hell with the damage!"

From one side, a small whisper of sound. As one, John and Redding turned.

Orpha ran for the door.

It was an apocalyptic moment. "Stop her!" Redding shouted, hurling himself after her. She crashed back against the wall under his impact, tottering and clawing as she struggled to squeeze past him.

Cursing, Redding stepped back. Then, coldly and deliberately, he slapped her across the mouth.

Without quite knowing how or why he did it, John too lunged forward. Catching Redding's shoulder, he spun him about and threw a short, hard right.

The blow connected. Solidly. Redding staggered backward, hand to face. "My nose!" he bellowed. "Damn you, you bastard, you broke my nose!"

Seizing an onyx bookend, Redding swung it at John. The bookend hit where neck joined shoulder. John's whole side went dead, paralyzed. Only pure reflex action with his other hand enabled him to wrench the bookend from Redding's grasp.

A letter opener lay on the desk. His face a mask of pure maniacal fury, Redding snatched it up and lunged.

Desperately, John swung the bookend. It caught Redding just below the temple with such force as to leave the kind of deep, visible indentation that happens when a thrown brick hits a melon. A surprised look passed over his face, and then Redding crumpled to the floor.

Panting, John turned. Orpha was nowhere to be seen. The door stood open. John ran to it.

Orpha stood teetering on the curb. But just as he appeared, she launched herself out into the street, waddling frantically toward the other side as a car bore down on her. In soaring panic, John tried to cry out, to lunge after her. But iron clamps seemed to close about his throat, and his legs buckled in a spasm of pain.

"Orpha—!" he choked.

At least, he thought he did. He could never be quite sure. Because even as he spoke, a weird, translucent haze billowed up about him, wafting reality away. . . .

John Greer recovered consciousness in a world of strange, velvety blackness. He lay on his back on what seemed to be some sort of couch. When, awkwardly, he reached up to loosen his collar, his fingers touched unfamiliar fabric, cut in a style unlike that of any garment he'd ever owned.

His spine prickling, he let go of the collar.

The darkness vanished in the same instant, replaced by a gentle radiance that hardly seemed to fit into the category he knew as light. A cordial, somehow familiar voice said, "Welcome aboard, Mr. Greer. I trust you've not experienced too much discomfort."

The prickling along John's spine focused into a tight, paroxysmal tremor at the nape of his neck. But panic was hardly a constructive reaction, so he made it a point to lie still for a moment longer. Then, with a great pretense of self-possession, he stretched and, rolling onto his side and sitting up, glanced casually in the direction of the speaker.

An open doorway faced him, set in a wall that resembled mother-of-pearl. Gray-haired Astrid Undahl stood just inside. She wore a smock-like, professional-looking garment, strangely glossy, with a high collar and three-quarter sleeves.

The collar style rang a bell. John knew instantly that this was the cut and fabric of his own attire.

It was hardly a time to discuss fashions, however. Wariness masked by an air of affability seemed more appropriate.

Miss Undahl matched his smile. "You have questions, of course," she observed briskly. "To save time, I'll simply reassure you: you're among friends."

"Nonhuman friends?"

"That's one way to describe them."

"What about Orpha?"

Miss Undahl looked away. "I'm sorry. . . ."

"She's dead?"

"Yes."

A numbness settled about John's heart. But that was pure reflex, and he knew it . . . senseless, in view of the way his marriage had worked out these past twenty years.

Shaking off the mood, he asked, "Where are we?"

"You might call it a space ship," Miss Undahl answered, after a moment's consideration. "But that would oversimplify the issues. Or, you could say it's a mobile world, but there are implications to that concept that are difficult to comprehend. So perhaps the best way to put it would be to say that you're . . . elsewhere: far away from, but still in contact with, your planet Earth."

"How did I get here?"

"You were . . . transported."

"Why?"

The woman shrugged. "In view of the circumstances surrounding Dr. Redding's death, you certainly would have been subjected to rigorous police or court interrogation. That might have proved disastrous. Consequently, it seemed desirable to remove you from the hazard area."

"How long do I have to stay?"

Miss Undahl fell back a step. She smoothed her hair. "You may as well know the truth, Mr. Greer. Officially, you're a fugitive. You have no choice but to stay here, in sanctuary, for the rest of your life."

A ripple of sound, at once musical and dissonant, came like a period to her statement. She looked around quickly, then said, "I'm sorry. I have to go now. We'll talk more later."

Alone again, John settled back on the long couch.

On the material side, he decided, he had little to complain about. This seemed like a place of creature comforts, and he was safely out of reach of Earth's law.

Yet there was no peace in the thought. For, safe or not, at best he was an aging human among hybrids. His world was gone. He faced a future without goal or purpose: a succession of endless hours of idleness and boredom.

Loneliness closed in around him like a wall. Why did he have to be the one? A younger man might have built a new life here; perhaps even might have met someone who would share it. And this hybridization project, reshaping humankind through new mutations—for a geneticist its implications were staggering. He could have carved out a place for himself, found a role to play. . . .

A whisper of footsteps. He half turned on the couch.

The portal through which Astrid Undahl had departed now framed Sybil Pellegrini. "Hello, John." Her smile was as warm and wonderful as always.

"Sybil . . ."

"What am I doing here, you mean?" She moved a step closer as she spoke; and as she did, the room's radiance struck new highlights of loveliness in her blonde hair. "I'm your assistant, of course, just as on Earth. All your life you've underrated yourself, your abilities. Now, that's over. Your work has implications for other worlds you can't even suspect. It was taken for granted that a man with a mind as active and original as yours would want to continue with it."

"But you . . ."

"I asked for the assignment."

Briefly, John sat silent. But inside him, his heart was pounding.

It couldn't last, though. He didn't dare let it. "I'm sorry, Sybil. I don't want you."

Sybil's face seemed to fall apart. "You . . . don't want me . . . ?"

"Not under these conditions."

"Conditions? What conditions?"

John stared at the floor. "I'll give it to you straight," he said finally. "I'm fifty years old. You're still in your twenties. If I let you stay here with me, the day's going to come when I die. You'd be left alone."

"You deserve better than that. I couldn't live with myself if I let that happen. So, there's no choice but for you to go back. Your friends can dig me up another helper."

For a moment there was utter silence. Then, abruptly, Sybil's violet eyes widened and she laughed aloud. "You mean—nobody told you?"

"Told me?" John stared. "Told me what?"

"About the aging process."

"What about the aging process?"

"Can't you guess? Your fringe benefits here include a small medical marvel. It manipulated aging—suspends it, for all practical purposes." Sybil came close, still smiling. "Don't you see, John? When Astrid mentioned long-lived hybrids . . . well, on Earth, you were on your way to becoming an old man. Here, you're just getting started."

The hair along the back of John's neck prickled. He didn't move. He didn't speak.

He couldn't.

Sybil's laugh was warm with understanding. "Some ideas—they take a little time to sink in, don't they? About as long, say, as we'll need to look over your new laboratory."

John considered. "Just about that long," he agreed. "That is, if we hurry."

He took her arm. Together they strolled through the door of light. ♦

Notes Toward a Proof of the Theorem: Love Is Hunger

Dale Bailey

The author of this unsettling but compelling tale has burst on the scene in the last year with two stories published in F&SF and several others in the pipeline there. Dale says he made his first submission to AMAZING Stories when he was in eighth grade, but didn't sell anything until after he attended the 1992 Clarion workshop—apparently proving, once again, that workshops *do* work.

Seduction:

The first night they spent together, he could feel the weighty regard of the dolls, their porcelain eyes. He twitched the sheet, burrowed deep, deeper into the ripe musty odor of their sex, into her warmth, and her smooth flank, hot against his belly.

"Mmmmmmmmm," she said, a wordless hiss suffused with contentment, lingering in the thick air. "Mmmmmmmmm," she said, and her fingers wormed at him, working.

Again, in the glow from the bathroom, with the weight of the eyes watching him, propped on extended arms, he worked himself relentlessly in and out of her until his muscles projected in long cords, tensile as rope, and his body sheathed in a slick hot layer of perspiration. He watched, fascinated by the mystery of it, by the mystery of her body devouring his and the mystery of his hunger for it.

Afterwards, he drifted, and then wakeful, he was in her again, his head thrown back against the headboard, mouth open, wary of the eyes.

Her voice, husky and dry, came to him, saying something she had not said before. "Hit me, hit me, hit me," in a syncopated ceaseless percussion, meaningless, like hiccups, and something weird happened. His mind snapped, elastic, encompassing; he absorbed the current of her emotion, wordless and rhythmical, turbid with desire. Momentarily, he was in her head, could feel the thickness of himself probing in her and hot waves radiating from her core. Once before, long ago, this had happened to him, and momentarily horrified at his sudden realization, his open hand, as if possessed, smashed across her bare buttocks, again and again.

"Hit me," she was saying. She liked it. "Hit me, hit me, hit me . . ." The words degenerated finally into sounds meaningless as a bird's sounds, those hot waves pulsating through her core, through him, so that in the expansive corona of pleasure it didn't matter that her teeth gnawed at his shoulder.

And then, suddenly, it was over. He examined his shoulder, inflamed, starting to bruise, the faint ghostly outline of her teeth, filling with his blood.

"You bit me," he said. "You bit me."

She laughed, deep, throaty; her eyes glimmered through dark hair, like a veil. At the corner of her lip he saw a single ruby droplet, and her tongue like a cat's tongue, slicking it away.

Dark emotions swirled through him, the feel of her pale flesh stung ruddy beneath his palm. Why? Why?

"Why?"

* * *

Traumatic Childhood Incident #1:

It had happened before, that feeling, that sudden union. Just once—when he tried to jump his bicycle over the stream that ran through the gully in his backyard. When he reached the crest of the earthen ramp, the dry soil crumbled with his weight. The handle-bars twisted out of his grasp, and suspended, he hung, the earth rushing up to meet him; in the timeless instant preceding collision, he wondered if his mother would bury him beside his father, how she would get along without him.

Then the earth slammed into him. The bike crumpled. He struck his head.

Hot through the darkness, invasive as a scalpel, came his mother's fear, her envy, so hungry and afraid—I don't want to be alone! He woke to whiteness, glaring; an antiseptic odor in his nostrils; his mother at the bedside, a vivid splash of color in the midst of all that whiteness. For a single instant longer, he could taste her all-consuming hunger, and then his mind was once again his own.

"Oh, God," his mother said. "I thought I was going to lose you."

* * *

First Date:

Following the art deco exhibit, they returned to her townhouse. In the kitchen, they sat on trestles at a table constructed of blond aromatic wood and drank imported coffee. She drummed her perfect nails against the tabletop. The sun slanted through the blinds and cast alternating stripes of light and shadow on the parquet. As the afternoon passed, he watched the pattern first lengthen and then dwindle until the twilight had swallowed it up.

She was an accountant. And he?

He worked on an assembly line, he told her. As the identical components for a machine were conveyed by him, one by one, he twirled a nut loosely on the end of each protruding screw, to be tightened at the next station.

He didn't tell her that the factory produced airplane parts, and he didn't say that often, as he worked, he imagined the finished aircraft. He imagined the roaring turbines and the rush of wind around the fuselage as the earth receded beneath the ascending plane. In his dreams, flying, he saw the flat barren land soften and curve at the horizon.

"You know what's kind of surprising?" she said. "It's surprising that a guy who works on an assembly line would even be that interested in architecture."

* * *

Ritual for the Dead:

On the third Sunday of every month, he accompanied his mother to the cemetery. They took her Lincoln, a long elegant car that rode so smoothly and quietly that movement might have been an illusion, the passing landscape an elaborate painting scrolling endlessly past the windows.

He drove, for his mother sustained the delusion of age and ill health. She frequently urged him to move home because her knees were getting bad with arthritis and it was hard for her to get around her big, empty house.

At the cemetery, she waited by the car while he climbed the hill to his father's grave and knelt to trim the long grass that grew against the stone. Afterwards, he placed fresh flowers in the metal vase, wrapped the dead flowers in tissue paper, and descended the long hill to his mother.

* * *

Her Hobby:

After their third date, she led him upstairs in her town house. When she turned on the bedroom light, he was momentarily horrified. He

thought that the room was full of small pale corpses, the bodies of dead children.

She laughed, and then he saw that there were no children, that the room was full of beautiful expensive dolls. The light gleamed on their porcelain faces, in their porcelain eyes.

* * *

Traumatic Childhood Incident #2:

He had his first sexual encounter in the back seat of his mother's Lincoln. He was sixteen at the time, on his second date with a vaguely bovine young woman named Emma Cook. He had trouble getting the condom on, and he reached orgasm before he even got inside her. He thought that Emma Cook looked disappointed, though she didn't say anything.

After he dropped her off, he rolled the windows down to dispel the musk of sex. As he drove home, he kept pulling over to turn on the interior light and examine the back seat. He was worried about the possibility of stains.

* * *

His Ambition:

When he was in eleventh grade, he watched a work crew build an addition to his school. He liked their easy masculinity, the way they drove a nail with three sharp blows, the way they wrought the building into a shape stable and immutable.

One day, he watched as the architect and the construction foreman conferred. The blueprints riffled in the breeze and the architect placed his hand flat against the rustling papers to hold them still. Something about the easy authority of the gesture appealed to him. He noticed the deference the foreman had for the architect, the attentive way of listening the foreman reserved for the architect's words.

All through his junior year, he watched the addition take shape, and by the end of the year he thought he knew what he wanted to do with his life.

* * *

Declaration of Love:

The realization that he was in love struck him very suddenly one morning on the assembly line. One moment he was standing there as always, plucking nuts from the tray before him and twirling them loosely onto protuberant screws; the next moment the world shifted fundamentally and irreversibly, as if the earth itself had begun to shake. The predominant gray of the shop seemed suddenly vivid, the hum and clank of the conveyor belt rich and crisp-sounding, the stink of sweat and machine oil as evocative as the slight whiff of perfume he sometimes caught around her.

He did not know that love, like all emotion, is in fact a chemical reaction that can be reproduced in the laboratory. Had he known, he would not have cared.

During lunch, he left the plant and drove to a flower shop to purchase two dozen red roses. He delivered them himself, walking right into the office where she worked. She was embarrassed, he could tell, but he thought it was just because of the roses.

When he handed her the flowers, he noticed that one of the thorns had cut his finger—green tissue paper polluted with a gout of crimson blood.

* * *

Reversal #1:

During the first semester of his senior year, he told his mother that he wished to go away to school and study architecture. His mother did not reply, so the next day he stopped by the guidance office and picked up the proper applications. That night, while he sat at the kitchen table and filled out the applications, his mother told him that maybe he should put it off for a year or two.

It's a matter of money, she told him. His father hadn't left them much.

He didn't know what kind of money his father had left, but he knew that his mother made enough money to keep driving the Lincoln. He put away the applications. The next fall he enrolled in a nearby community college and began to take general courses.

* * *

Reversal #2:

Two months, and she began to draw away. She pled exhaustion, hard days at work, and for a while he believed her. Then it occurred to him that perhaps she was sick, that she should see a doctor, but she said she was fine, just tired.

Finally he thought that maybe he hadn't shown her how he loved her.

Every day, he sent her cards. Flowers weekly. Occasionally, he delivered them himself, walking into her formal office in jeans and T-shirt to place the flowers on her desk with a loopy grin.

One night they made love. "Hit me," she whispered, "hit me," and he struck her flesh ruddy with his blows. "Hit me, hit me, hit me," until the syllables were drained of meaning. Small sounds, like a bird's sounds. As he reached orgasm, he felt her teeth at his shoulder, and it did not matter. He thought to himself that maybe this was what he so loved about her, this somehow startling sexual hunger, so voracious, so at odds with her immaculate wardrobe, with the collectible dolls, their immovable porcelain grins.

Afterwards, they lay in bed with only the bathroom light on and the

long shadows of the furniture draped across the room and across the sour tangle of sheets and her slim body in dark folds.

She said, "You know, I always wondered why you didn't go back to school."

* * *

Severed Ties #1:

During his second semester at the community college, the boring lectures on college composition and basic math began to be oppressive. Further, he had grown to hate the house where he had spent his life—the bedroom with the stack of comic books atop the chest and the posters of dated rock-'n'-rollers on the wall, the yard that his mother insisted he keep exactly as his father had kept it years ago, the same endlessly numbing routine of his life.

Every Sunday morning he accompanied his mother to church, sat in the same pew, listened to the same preacher deliver his sermon in the same tone of voice he'd used as long as he could remember. Every Sunday afternoon they took their meal at Shoney's and the same bored waitress—whose name was Darlene—took their unchanging orders.

When he heard that the plant was hiring workers for the line, he withdrew from school and took a job. Before the year was over, he was living alone in a spartanly furnished rental house. He was responsible for his own meals, for his own laundry. He indulged the luxury of ignoring the phone.

* * *

Severed Ties #2:

One evening, sprawled in the stillness of her bedroom with the bathroom light bronzing the ruddy curve of her hip where he had struck her, she said,

"I don't feel comfortable anymore."

The roses, she said. The cards, she said. The phone calls. She needed some time. She needed space.

Suddenly he saw all her strangeness for what it had really been. Her embarrassment when he showed up at her office was not (he now saw) the embarrassment of her being loved so completely and so publicly, but the embarrassment of him, here in the formal sanctity of her office, or in the sanctity of her home, with her porcelain dolls ranked in their shining perfect rows. Her shock at his interest in architecture was not (he suddenly realized) the shock of discovering hidden riches, unknown facets, but the shock of him and his failure, and its presence in her immaculate and ordered life.

He stood, pulled on his jeans, and buttoned his shirt with shaking fingers. He ignored her questions when she asked him what he was doing and couldn't they talk about it. A moment later he ignored her

screams. Methodically and without emotion, shrugging her from him, he shattered every porcelain face, delimbed their ragged bodies.

* * *

Mother:

I never liked that girl. You're better off without her. You're too good for her anyway. Why don't you come home? Why don't you come home and live with me?

* * *

Illness:

He dreamed in the stillness of a summer noon, and in his dreams—as it had happened twice before—he knew her; his mind, elastic, absorbed the current of her most intimate desires. That hunger, invasive as a scalpel.

The sickness came on him sudden. He kicked the tangled sheets to the bottom of the bed, rolled over, held his stomach, vomited in the floor. A sour acidic stench filled the room. He lay on his back, panting, his eyes closed, feeling the corruption within him—the contagion—and then again he was sick. The sickness clawed into his throat, filled his mouth.

Gasping, he clutched his throat and leaned over the edge of the bed. Tendons whined and popped, his jaws like a snake's jaws, unhinged. Muscles all along his throat rippled and pushed, trying to expel the obstruction, and then, suddenly, it was gone. He heard a soft distinct thump, and then silence.

He opened his eyes.

On the floor, an arm, ragged as hamburger at the shoulder. The hand flexed. The nails, perfect, began to drum against the floor.

* * *

His Reaction:

In one respect, he was like us all. In his secret heart, unspoken, he had nursed always an awareness that he was somehow unique, destiny's child. It was this awareness, instead of fear, that fell upon him now, as he sat at the edge of his bed and studied the arm, its slim manicured fingers drumming against the floor.

The arm. Her arm.

Hers.

He walked into the bathroom, shoved three fingers far back into his throat, and was sick again. A ragged goblet of flesh, perhaps a shoulder. With trembling fingers, he carried it into the bedroom and placed it by the arm. Slowly, the pieces knit themselves whole.

* * *

Desire:

Perfect in every detail: her breasts like ripe fruit; her hair dark and

thick, with red highlights; her face, sharp-planed, clear-completed. But there was a strangeness about her, too—her gait was as mechanical and jerky as that of a wind-up doll; her silence unnerving; her eyes, their glint like porcelain beneath the lights.

He hungered for her. He took her violently; rained hard blows against her flesh; bit her, high on her right shoulder. Afterwards, she stared at the lingering ghosts of his teeth in her flesh.

She did not speak.

* * *

His Fears:

He locked the windows and lowered the blinds along the front of the house. All day, working on the line, he worried about her. What if someone stopped by? What if someone called? Nothing like that occurred. When he came home, she was sitting silently in the dark living room, naked, for she had no clothing.

* * *

Some Developments:

He showed her how to bathe, and she bathed herself. He cooked, she ate. Slowly, the strangeness departed. Her walk became fluid and natural; the slick ceramic sheen of her eyes softened. But she did not speak. Eventually he decided that she could not speak, though sometimes in the night, as he moved inside her, when he struck her, she made small sounds like a bird's sounds.

One Sunday afternoon his mother visited, and fearful, he locked the girl in his bedroom. It seemed his mother would never leave. Finally, to get rid of her, he agreed to lunch at Shoney's. It was near dark when he returned. He walked through the silent house to the bedroom to release her. When he opened the door, she was staring out across the back yard into the growing darkness, making small plaintive noises in her throat.

* * *

An Encounter:

One day he saw her at the mall, accompanied by a man he'd seen around her office. She looked pale, tired. There were dark hollows beneath her eyes, and her flesh seemed translucent, as if she was slowly disappearing.

He followed them to the food court and when she went to the rest room, he approached her companion. The man tensed as he approached. He could guess that the man was thinking about the things she had told him: his job on the line, the porcelain dolls.

"What do you want?" the man asked; he glanced nervously toward the restroom.

"I saw her. Is she well?"

The man looked down. A shadow passed across his face. "She's been sick for a while now," he said, "and she's getting worse. No one knows why. I really don't think she would want to see you, though. I don't think that would help."

Nodding, he thanked the man and left.

* * *

Love Is Hunger:

At home, he found her in the bedroom, staring out into the back yard. He watched her from the doorway, the hunger growing within him. There was a tree outside the window, and as he watched a bird came to rest in the tree.

She reached toward the bird, as if to touch it, and her hand rattled the glass in its pane. Startled, the bird flew away. He heard her moan, a soft cry, yearning; his old dream of the airplane, the dream of flight, the dream of freedom, passed swiftly through his mind, and in three angry strides he crossed the room to lower the blinds, walling out the light.

He came to her, touched her, and it seemed to him, for a moment, as if she was struggling with him, trying to push him away. He could hear her moaning, small plaintive sounds like the sounds of an injured bird, and then she spoke, her first words, saying, "Please, no, please," with her hands stretched out to him and beyond him, to the window.

He bore into her violently and did not answer. ♦

Letters to the Editor: II

Dear Cele:

... But what I really am writing about is to say that nothing in Kazantsev's article amazed me so much as your introduction in which my first name was grossly mis-spelled, despite the fact that the translator's last name (identical with my first) was correctly spelled. I realize that typo's will happen, but I must urge you, dear editor, to proof-read such things with the greatest care, for the First Law of Asimov reads:

1: Thou shalt not mis-spell the name of the Good Doctor.

Isaac Asimov

We wouldn't for the world bruise the Good Doctor's ego. You will therefore be glad to know the linotypist has been executed for his lese-majeste! Okay, Isak?

(August 1963)

Every Comfort of Home

Laura Anne Gilman

It's a well-established fact in this field that writers can be editors, as testified to by the ever-increasing number of anthologies assembled by people who first became well known as tellers of their own stories. Well, the process works in reverse, too: "Every Comfort of Home" is the first published story by someone who already has a reputation as an editor for a major New York publishing house.

"Growing up," says Laura, "I knew that I'd be one of three things—a writer, an editor, or a marine biologist. With this sale I've accomplished two of those goals."

Coyote woke to rain, and the sound of thunder ringing in the distance. For a moment she was home, hearing the rain slush off dormitory walls. Rivulets raced down the single window, to pool on the sill. Somewhere a computer-generated bird trilled as it hunted for nonexistent worms. The scientist in her appreciated it—an excellent effect, calculated to elicit a specific response. Rise and shine, sleepyhead, the day's a-wasting. Right on cue, she frowned, forcing her face into the pillow as though that would make the sounds go away. It was no use.

Groaning, she hoisted herself up on one elbow and looked out the single window with bleary eyes. A paint-scrawled wall stared back impersonally, looking every bit as shopworn as she felt. Not even the imaginative graffiti could cheer her today.

Coyote combs her short black hair into shining order, fixing the beret at a jaunty angle atop her head. The red cloth contrasts well with her dark hair and skin, she notes with satisfaction. She throws her shoul-

ders back and tosses off a sharp salute as she had seen their instructors do. The military gesture seems absurd to her still, the archeologist aping military manners. It makes her giggle. Suddenly an elfin face appears over her shoulder, red beret falling off a tumble of redder curls. "Yes, yer a truly beauteous sight, lass, but bein' pretty won't save yer bide from a tannin' if we're late for presentation!" Jenna is all cheer, full of confidence. Today is *The Day*. Coyote turns away from the mirror, adjusting the AIE-issue jacket one last time, and leaves the dormitory that had been their home without a backward glance. Their future—the future—is elsewhere.

She remembered the beginning, with the uncaring clarity that comes only after everything else is gone. They came to Earth seeking knowledge of their neighbors, hungry for the exchange of information. We watch you, you watch us. Honored ambassadors to the stars. But there was a catch, of course. Once chosen, there was no going back. Physics and time wouldn't allow it.

NASA hadn't expected the stampede of Earth's Finest that followed that initial broadcast. The hastily thrown-together program, NASA's by default, selected two hundred of the most promising applicants for a grueling three-month training session.

When the dust settled, twenty-five young humans, all paragons in their fields, were certified alien-ready. She had been one. None were under twenty, none over fifty. All in excellent mental and physical health, with just the proper mixture of eagerness and caution, all willing to sever their ties with the earth, to be the first true explorers of the twenty-second century. According to one wag at *The New York Times*, the first cross-species exchange students.

There were rules, of course: don't do this, never do that. Medical doctors argued over the proper nutritional information to send with them. Psychologists worried over every conceivable psychosis that might crop up, and then some. But everyone was optimistic: humans, after all, could adapt to anything.

The volunteers called the handbook thrown together for them "The Bible" only half-jokingly. The commandments were real enough—breaking them would mean disrupting the experiment and making the results invalid. And without those results the two races could not—*would not*—meet. Neither race wanted to be the cause of the other's destruction.

The project was named AIE: Alien Information Exchange. That same *New York Times* reporter called it "Aye-aye," decrying the military aspects to their training. "If this is a purely intellectual exchange," he wrote, "then why the emphasis on survival tactics, self-defense training,

and such? And why should the U.S. military be their teachers?" There were protests, and rallies, and letters to the editor of every major newspaper and magazine. But through it all, the twenty-five volunteers were kept out of the limelight, separated from the media circus that generated around them. Only after their alien-aided craft departed were names entered into history books, faces immortalized in text.

Many news commentators referred to the launch as the Best of the Best Sendoff. History would probably call it the Best of Intentions Massacre.

Sensing the change in her body rhythms, a soft melody wafted into the room through unseen speakers. For a long moment she considered burrowing her head under the pillow, then sighed and swung reluctant legs over the side of the bed. Running a hand through close-cropped hair, she considered those legs dispassionately. They seemed to belong to someone very far away.

Dragging herself into the shower, she let the water sluice over a dark, elongated body. I look like one of those movie aliens, she realized, but didn't say it out loud. Don't identify with your hosts. (A whisper of memory. Don't eat the food of the faerie lands, else you'll never get back home. . . .)

She stroked one narrow arm, fragile bones shifting under too-thin flesh. Biting the inside of her cheek, she held the fingers steady with an effort. Nick had smashed the mirrors when he knew what was happening to them. It was kinder not to remember what a healthy body looked like.

The water cooled, and she touched the controls, alien-familiar now. She arched her back until the spray hit her face, driving away all thoughts.

The sky is darker than Raven's wings outside the large picture window. Sister-to-Coyote leans back in her leather chair, puts her feet up on the conference table, and sighs in delight. "Beautiful, ain't it? I wonder if they've got thunderstorms."

"They'll fake it," a tall woman says. "Anything we want, anything we desire, they'll create for us. All we have to do is be prototypical humans." They both laugh, a sweet, optimistic sound that turns bitter to the sound of water falling.

After toweling off and dressing in a pale green coverall, she returned to the room and made the bed, folding corners down carefully, without conscious thought. She hung the towel to dry on the back of a chair, and sat down on the floor. The carefully asymmetrical room had

changed color while she was gone, and now the music picked up its tempo.

She moved slowly through her stretches, some long-forgotten routine keeping her fit. There were other rooms she might use, rooms better suited for this than her sleeping chamber, but she hadn't gone near them in some time.

There used to be others in those rooms, others whose voices floated down the hallway like during lights-out time in a dormitory. It had been many months since the last light flickered and gutted. She did not think of them. She tried not to think much at all. Thou shalt not forget your home.

Sometimes, when the lights mimicked night, she could still hear them, rustling like mice in a barn—hyperactive experiments in a living lab. They'd each had a room of their own, complete with changing view and mood-responsive lighting that seemed paradise after the barracks-style housing of their training. When the first of them . . . went, they reverted, huddled together sleeping several to a room. But then the hysteria began, teammates sane one moment, throwing themselves into walls the next. Then they separated, cowering in their rooms for fear "it" was contagious.

And then, suddenly, it was over, and it was too late to hold on.

She knew she was dying, could feel her spirit giving way even as her body went on with its daily routine. The spirit, that light that had shone so brightly in all of them just a few eternities ago, had dimmed; the fierce determination that marked them all as explorers had faded. She would die and pass to dust, freed to run on the spirit-plains of her childhood at last. But death would have to come and get her—she would not go on that adventure willingly. It surprised her, slightly, that last flicker of spirit, of defiance. What is she waiting for?

She thought about the feelings she should have: sorrow, rage, regret. Nothing. No more. She was the last to go; turn off the lights and close the door. No more will be coming after.

Sister-to-Coyote dances in the firelight, throwing shadows that come to life on their own. The drums toss her higher, pushing her against the soft hide of the tent walls. Fever-sweat shines against her skin, and her hair clings to her neck and shoulders like heavy perfume. She throws her hands to the stars, and they draw her up to them. But their heat burns worse than the fever, and she screams. And screams. And screams.

She touched her throat, sure she would feel the pulse beating strongly.

The skin is cool, the throb steady. The memory-drums can't touch her any longer—she's given them up for an alien beat. She's not sorry—not for herself. It was all she'd ever wanted. She only wished there was some way to tell her hosts that.

Karl postulated that they were so alien to humans that they could not keep up a suitable environment. But that wasn't the problem, others argued. The first few years had been paradise, a working version of the ancient Biosphere fiasco. Although they never saw their providers, every comfort of home was generated for their use. Everything that could have been done, had been. What was wrong had to be within themselves, something all the planning hadn't been able to account for. Something in them—something to wreck all dreams.

It was after Karl's death that she saw one, for the first and last time. The remaining three, Joni, Cristobol and she, had laid Karl out on his bed, replete in his crimson AIE glory, for their hosts to dispose gods-knew-how. She hesitated before leaving, trying to remember some ritual to speed his soul's passage.

Standing in the doorway, in that half-life between looking and not-looking, she saw a form come out of a door that wasn't there. They both stood for an instant, bound by the rules of their agreement—no contamination until we better understand each other. Thou shalt not mingle. Logical rules, laid down by well-meaning politicians and physicians on both sides. She hadn't been surprised by the burst of longing she felt, before the figure melted back into shadows. Slowly, she too turned and left.

It was unfair. They had shared something, alien-to-alien, something that should have been encouraged, not forbidden. But they had sworn to uphold the regulations, to keep the experiment clean. And even had she been able to break that vow, she couldn't tell anyone—there were no words to share it with, no references to make. And no matter how many times she hung around corners, hesitated before entering doorways, that contact was never repeated.

She wonders, sometimes, if that moment of communion is why she alone is still alive.

In dream state, Sister-to-Coyote rides with the wind; soaring on air currents, then skimming close to the ground. She reaches out a hand and lifts a groundhog from his burrow. They stare into each other's eyes for long seconds, then she drops him, watching him scurry for the safety of his dark hole. For a moment there is regret, then she leaves it behind and soars on. "You were named for the Trickster," her

Grandfather says over the sound of wind. "Trickster brings us laughter and danger, and the two are intertwined. . . ."

She slowly surfaced from the bed, knowing that they have come and gone. The table was warm where the platter of food rested. She searched for hunger, found no pangs. Her body remained constant, held in stasis.

The scene at the window had changed. She moved herself enough to look out. The desert stretched for miles beneath her gaze. Pink sands shifted, and towering rocks threw shadows as the suns eased below the horizon. Each grain was perfectly real; the total impression was of an expensive fake. Home. Not hers, theirs. She knew without knowing how. They've gone all out for her, broken the vows in a last-ditch attempt to keep the experiment alive. But it's too little, too late.

Jamal had tried to break the glass, get outside. They had all known that urge, to break through the restrictions and feel an alien wind on their face. She wished she were allowed to communicate, face to face. It would be a kindness, she knew, to give her keepers some reassurance that they were not to blame. We should have known better. *THOU SHALT NOT MEET*. Stupidity. Insanity. It can't go on like this.

Diane leans out of her doorway. "Hey, Coyote! C'mere and see this!"

She found herself in a doorway. She didn't go in those rooms anymore. The window was blank, the floor was cold.

"Can you believe this view? It's like a painting! God, I think I'm going to love it here!" Diane lounges on her bed, eyes sparkling. "Rats in a lab never had it so good!" Nickel shakes his head, smiling at her. "I'll bet rats never wanted to know what their scientists were thinking," he says whimsically. Everyone laughs, crowded into one room, sitting on the colorful rugs and leaning against the pastel walls.

She paces down the hallway, looking for more ghosts.

"Coyote? Where are you? Where is everyone? Why don't you answer me?!" Coyote holds him in her arms, her long dark hair shorn where once it would have covered them, hidden them. "Don't you leave me too," she whispers into his unbearing ear. "Don't you dare leave me alone."

She is struck by the urge to speak. The sound of her voice startles her. She had forgotten it was there. "Ahhhhh . . ." she essays, feeling the

vibration in her throat. "Ahhh . . . ahhh . . . haaa..." She realizes suddenly that she wants to laugh.

Is this how it begins? she wonders idly, not really caring. Laughing like a madwoman. Laughing like Coyote. Will I confuse the poor dears even more? What will they say to explain me? The specimen died of laughter. She looks at the statement from all sides. They will try to save me. As they tried to save the others. And they will fail. "I wonder if they'll ever understand why."

For the first time she thinks of those she left behind: her tribe, family, friends, and an adoring, uncomprehending world. And then, finally, she thinks of those she never met: volunteers stranded in an environment they cannot comprehend, longing for a world they are not allowed to enter—her closest kin, in many ways. She knows their fate.

When she dies, they will come to take her body. *Thou shalt not meet.* She can't wait. ♦

Letters to the Editor: III

Dear Ted:

I found the article on Hugo Gernsback (in the May issue) completely fascinating. Though I still feel a certain gratitude to our Hugo for printing my first stories, these fresh facts certainly confirm my own old impressions of his business methods.

I can add one small footnote. The evidence seems pretty strong that Gernsback took the Experimenter mailing lists with him. Something else I know he took is a manuscript of mine, which I had submitted to *Amazing Stories*. He wrote to offer me "standard space rates" for using it in the new *Science Wonder Stories*.

Naively—it was only my second story—I accepted the offer without asking what the "standard space rates" would be. He printed the story as "The Alien Intelligence." His check, when it came, was \$75.00—about a quarter of a cent a word. *Amazing* would have paid me more.

Jack Williamson
(November 1978)

Bitter Business as the Day

Pamela D. Hodgson

The story below is Pamela's second appearance in AMAZING® Stories in as many magazines, following "A Taste of Success" in the Winter 1994 issue. About this latest piece, she says, "I've been fascinated since high school with 'the Hamlet problem,' as English teachers called it, that is, why does Hamlet change from an idealistic and sensitive but weak procrastinator to a forceful but sometimes cruel 'man of action?' There are volumes upon volumes of critical thought on the matter."

Here, then, is yet another volume. . . .

Jeremy Kwik was too old to play Hamlet. Much too old. But it had to be done. He touched the spot at his temple where the gray was crowding out the black, pulled his hand back. He'd been too ugly to play Romeo, he reminded himself. Still, he'd managed it. But that was a long time ago.

"The play isn't the risk here, you know," his Personality Stabilization Construct reminded him, talking inside his head but with a resonance that echoed as if from the walls of his wardrobe-sized cabin. He assumed it meant the recent bout of illness. "They're damn lucky to get an actor of your reputation headed out to the Orion star system with the war going on. Not too many'll do a USO tour any more. You could recite the alphabet and get standing O's."

Jeremy pursed his lips slightly at its American diction. In response it adjusted its pronunciation—still standard, but a little more rounded, like the pseudo-Shakespearean tone so many actors adopted—as it continued. "You are, after all, arguably one of the greatest actors alive today. Don't forget that."

Perhaps, Jeremy thought.

"Though a little vain about your accent."

Not vain—just not ashamed of my origin. His mind drifted back to his childhood in northern England, outside Newcastle. The frame council houses, all alike, lined up against the Metro as if to keep it fenced in, safe from the irregularity of the brick and stone houses that predated even the hoary council blocks. There was something gray about the place; he remembered all the colors as if they were in black-and-white. Even the air smelled gray: always heavy with the wet-iron stink of the most recent attempts at industry. And of course Sharon—he always thought of her as a spot of color amidst the dirty chiaroscuro. He was drawn back to the present not by a comment, but by the absence of one. At last, the construct was leaving him alone.

Of course, the bloody thing was necessary.

He shook his head—yes, those were *his* thoughts, not the construct's. Only a week in the spaceship, in this tiny blue-gray passenger cubicle, and the construct voice inside his head had already confused him about whose thoughts were whose. How much worse could the psych-bombs be?

"Much worse."

Ah, back again. He fingered the surgical steel implant behind his ear. Cold.

"We've been very fortunate. Nothing even close enough to give you bad dreams. Much less drive you to madness and death."

Jeremy wasn't sure the construct was worth the expense, nonetheless. Actors are quite used to ripping away their emotional shelter for all the world to see.

"Or some hide behind a character. Wear it like a mask."

He felt it like a slap.

"And if *that* pains you, you can't begin to cope with a psychbomb."

Jeremy's eyes darted around the cabin, though there was nothing to see, and no one to see him. Hell of a weapon for someone to invent, he thought.

"I think that's what they said about atom bombs. But they didn't have any *biological* stabilization constructs to protect people against those."

Of course, the poor sots fighting *this* war don't have constructs of any sort either. Only the rich and famous. He hadn't actually wanted one, himself. He remembered a quote from a play he'd done once, about Robert E. Lee: "It is well that war is so terrible, lest we should grow too fond of it."

Jeremy was in his fold-down bunk, not quite asleep owing to the scratchy military-issue sheets that crinkled like paper with his every

breath, when the psychbomb detonated. He felt a shudder through his entire nervous system. We're not soldiers, he thought, they're not supposed to—

And then came flooding through him the memories:

Pain. Sharp kicks in the spine, rear, head, legs, as he coiled his ten-year-old self into a ball to protect whatever he could, and most of all, so they wouldn't see him crying. The shrilling that assaulted his ears resolved itself into words: "Froggy-boy!" "Toadface!" "Queer!" He was still clutching the invitation to their swimming party, the paper now crumpled and sweat-damp, the invitation that had meant for the first time that he was included at the new school. But his was the only invitation that said two o'clock; the rest of the boys had come at one. When he'd come through the gate, they were waiting. Laughing, they tore off his clothes and flung them, as well as the bag with his swim togs and towel, into the pool. The chlorine odor stuck in his throat. He hung onto the invitation like a lifeline as they pummeled him from all sides and he tried to make himself stop crying. How stupid could he be to think they would have wanted him—

And then he was twenty-two. He paused just outside the dining-room door to shift the three drinks in his hands into a more stable configuration. Wouldn't do to spill and make a poor impression.

"Not much of a looker, is he?" That was Sharon's mother—soon to be his mother-in-law. "Must have something to recommend 'im, but I can't fancy what. You would have done just as nicely with one of the lads down a' the pub. An actor. Really. Not much prospect in that, my girl." He could picture her preening her badly dyed hair as she spoke.

There was a long pause—too long—as he waited for Sharon to come to his defense. The drinks were steady now; he should just stop eavesdropping and go in. Sharon really should have said something by now, though. At last, she did.

"He's really quite a good actor." Not that Sharon, being from the wrong part of Jarrow, could tell a good actor from a computer-generated soap-story holo. But he appreciated her defense. He heard her fork scrape her plate as she went on. "Managed to persuade me he's good in bed, though I hardly remember it after we've done."

His fingers clenched around one of the glasses. He wanted to squeeze it to pieces and feel the shards slice open his hand and the blood pour out onto the floor. The amber liquid shivered, but the glass didn't break.

"So what do you see in him, my girl?"

Sharon laughed. "There's family money. He's quite well off. And of course he'll travel a lot. I can still have a bit on the side."

He thought the heat of his anger might melt the ice in the glasses. But he didn't want to be angry. He held it back. Perhaps after they were

married, he told himself, things would be better. He would try harder. She would learn to love him. He fought off the tears forming at the corners of his eyes.

And then he was forty-nine once again, at last, back in his narrow bed in the blue-enameled cubicle. He reached out to trace the seams in the walls where the loo and the shower slid away, to remind himself where he was. They were still painful memories. Fat lot of good the construct had done him.

"The recollections would have lasted significantly longer without construct intervention. And that detonation was pretty far off."

He realized that he was clenching a fistful of blanket in white-knuckled hands. He carefully, casually opened his hands and smoothed out the knotted cloth.

"I imagine you also feel the bruises on your back."

He narrowed his eyes and resisted the temptation to touch the tender spots along his spine. No such thing as privacy, he thought.

"Just doing my duty."

It left him alone for the hour it took him to fall asleep.

He had studied various famous Hamlets on video and holo while he'd been ill—there hadn't been as much mail as when he'd been sick before, so he'd had little else to do—and now he had some quiet time to work with the play. He hadn't performed it in a good twenty years, and didn't want to look foolish in front of the local company of actors he would be joining. The software was available on the ship to create the illusion of an audience, refined to his specifications, but he wasn't ready for that. He never liked that sort of thing anyway. Instead, he faced the wall and tried to imagine himself in the Court of Denmark, a younger man than he could remember ever being.

"Carrying, I say, the stamp of one defect,

Being nature's livery, or fortune's star . . ."

He paused to wonder which was the case for him: nature or bad luck. Never mind. Knowing the answer wouldn't change anything. He picked up where he'd stopped.

"Their virtues else—be they as pure as grace,

As infinite as man may undergo—

Shall in the general censure take corruption

From that particular fault. The dram of e'il

Doth all the noble substance of a doubt

To his own scandal."

Not quite right. Perhaps a bit too preachy. Try it with a little more subtlety.

"Perhaps some sadness. Think about it."

It's a critic as well, he thought. Just what I've always wanted: a director implanted into my brain. "How all occasions do inform against me," he muttered.

"That's from a different act."

"Shut up!" His voice rebounded off the unnaturally smooth walls; he felt immediately ridiculous for shouting at a computer program. It said nothing.

He was quite sick of the little room, but going out into the common area he would risk meeting the other dozen passengers, others with compelling reasons to be permitted into the war zone. But he had nothing more than location in common with them, and he hated talking with strangers. He never knew what to say. Then of course they would point and whisper, and talk about him, even though most of them had never seen his work. There were only so many who could afford to see live theatre, and his holofilms were the sort of thing people kept in their collections just to impress the neighbors—the case left artfully about, but the seal never broken. This was why he preferred to work on stage.

Still, his tongue felt flabby in his mouth for lack of use. It seemed like months since he'd seen another human being. He was debating whether to risk the public, just for the change of scenery, for a little sanity, when the next psychbomb hit.

He found himself on stage at the Imperial in New York, in a Hamlet of his late twenties. The other actors left the stage. The lights came down so that only a very realistic moon floating above him cast any light at all. Instinct led him like a moth to the center of that light.

"'Tis now the very witching time of night,

When churchyards yawn and hell itself breathes out

Contagion to this world."

Contagion. It reminded him how afraid he was whenever he was ill. Afraid that hell itself would take him, leaving no one to miss him. Ah, but *they* would, he remembered, peering out over the lip of the stage at the audience, hearing their soft breath and rustle in the dark. They would if he gave them a good show. He crossed downstage, his carefully practiced footfall against a creaky board enhancing the mood of doom.

"Now could I drink hot blood

And do such bitter business as the day

Would quake to look on. Soft! now to my mother."

He nodded in the offstage direction, took a step, then hesitated, turned back to face the audience, but looked only at the floor.

"O heart, lose not thy nature! Let not ever

The soul of Nero enter this firm bosom.

Let me be cruel, not unnatural;
I will speak daggers to her, but use none."

Now he lifted his head slightly and spoke to the audience, looked out into the dark to where their eyes must be, took a long breath, confessed it to each of them.

"My tongue and soul in this be hypocrites:
How in my words soever she be shent,
To give them seals never, my soul, consent!"

He pivoted and strode with purpose into the wings, the roiling emotion of the speech still heating his cheeks and running like current through the sinews of his arms. It was a moment before his eyes adjusted enough for him to recognize the pear-shaped figure lounging just behind the proscenium arch: Sharon. The deep blue silk of her maternity dress hung in curtainlike folds, rumpled a bit where the portfolio she was clutching rested against her. It was full, no doubt, of the two-dimensional photographs she collected and dabbled in. Like him, she appreciated the arts of an earlier day. It was all they had ever had in common.

"Jerry, love," she said as he approached. She wanted something. Clearly, she didn't suspect that he'd seen the genetic test results that proved the baby wasn't his. Or else she was a better actor than he. His fingers stiffened.

She reached out and stroked his sweat-stained cheek. He felt her fingernail draw a trail in his stage makeup. He should slap her hand away, cut the life out of her, with his tongue if not a blade.

"Jer, doctor says I need more rest. Thought I'd go over home for a bit. Less stressful there, isn't it then?"

Especially with your lover close to hand. But he said nothing.

"All right, then, is it?" She pecked his cheek and left. As she turned, something spilled from the portfolio. He watched her go. When she had rounded a corner out of sight, he bent and picked up the stiff, shiny square of paper. He turned it over. It was her, with someone else: a muscular young man with blond-streaked hair and watery blue eyes. They stood twined like tree and vine. He didn't recognize the fellow. Another one of the many. He crumpled it in his fist. I should go after her, he thought. But tears were slicing down his face, and he had to go on again in a minute.

"Violence would have solved nothing." It was the construct intruding into his awareness. Yet he was still there, in the past, in the theatre, rather than in the spaceship. The spaceship. Yes, let me think about that.

"Are you coming to Orion to escape the memory of Sharon?"

"No!"

The actor playing Polonius spun toward the wings to see who Jeremy was shouting at. Who *was* he shouting at? Here he was, years in the past, talking to something that wasn't real, that existed in a present where he somehow wasn't. . . .

Polonius went back to his dialogue. Jeremy turned back to where Sharon had been, and she was there again. But now she was crumpled on the floor, blood running in rivers and tributaries from a long red gash just above her belly. The blood stained the dark blue silk black, like folds and shadows. Her dark blond hair fell softly, like a halo, around her head, and her face was more beautiful in death than it had ever been in life.

"But that didn't happen," Jeremy mumbled. The construct didn't answer. This must be a hallucination, something to do with the psych-bomb.

"Murderer!" It was the actor playing Polonius. What was his name? Jeremy couldn't remember. He'd gone on to do a lot of virtual sex holos, became quite well known for it. It was something beginning with S.

And then Polonius and another fellow—the stage manager, a young bloke called Mac—were grabbing his arms at the elbow and dragging him behind the curtain. He denied the reality of the scene until the pain in his shoulders became too searingly intense to ignore. He realized as he struggled that he was clutching something in his left hand. He let it go, freed his hand to help in the struggle, and felt it bounce off his struggling foot. Over the sound of Polonius's heaving breaths, and his own light gasps of pain, he heard the object clatter sharply against the floorboards. From the corner of his eye he saw it was a dagger, its blade dark with blood.

They slammed his back against the cinderblock wall so hard he felt each vertebra as it hit. Mac let his arm go and ran off somewhere. Polonius let him slide to the floor and pressed him there with a boot on the breastbone. He closed his eyes; the backs of his eyelids shone red with pain. He opened them. Bleed from the stage lighting glinted white and brown on the bloody silver blade in this Polonius's hand. But it was on the floor in the wings! How could he have gotten it? "Now you'll pay for what you've done to my lovely Sharon!" he intoned in his bad actor's parody of emotion. Oh, Lord, not you too, Jeremy thought. The cynic in him muttered that only reality could be so poorly written.

The knife fell, plunged into his chest. He heard the skin split like a balloon, the air rushing out of him in a scream and his chest collapsing on itself. He felt it like ice and fire both at once, felt the darkness trying to smother him. Could this hallucination kill him?

The world was fading to black. He felt limp, airless, empty. Vaguely,

as if through a wall, he heard heavy steps, an army of them, then breathless voices. "So what happened?" one said in a flat, nasal American accent.

"He killed Sharon!" Polonius said, in the style of an orator. Someone snorted back a laugh.

"Who is he, anyway?"

"Aah, nobody, some dime-a-dozen actor."

He thought they would remember . . . they should remember . . .

"Some dead actor, looks like."

It stung more than the knife.

Just as the world went fully black before his eyes, he was returned to the present. The white-noise rush of the spaceship air system replaced the voices. He woke clutching his chest as if to hold the wound together with weak, damp hands. When he opened his eyes, the wetness he expected to be blood was only sweat, a lake of it, soaking his rayonette tunic through so the silky fabric stuck to him heavily. He tried to breathe deeply, relax, but the air felt coarse and dry across his raw throat. He sagged against a wall, knees barely sustaining his weight, and swatted perspiration-oiled hair away from his face. "That wasn't real," he muttered.

"No, not in an objective sense. Psychodrama, you might call it."

Gradually, he relaxed his grip on his chest. "The frightening part was . . ." No. He wasn't going to tell this thing, this construct, his secrets.

"Your heart rate is returning to normal. I think you'll be fine."

"He killed me. I didn't *do* anything. He killed me, and no one did a thing. No one cared."

"You killed Sharon."

"Not really. Even in the hallucination. I was there and I had the knife, but I didn't actually stab her. I did nothing."

"Responsibility is a difficult thing."

He didn't ask what it meant by that.

They were only a few days out from their destination. Jeremy thought he had a grasp on what he wanted to do with the play, and was ready to practice it on an audience—before some provincial director began interfering. That is, a real audience. He'd had quite enough of constructs.

He would try the familiar soliloquies. He arranged for an announcement to be communicated to the crew and others aboard. He ordered his costume, a replica of Olivier's RSC gear, sent up. He remembered a picture Sharon had shown him once, of Olivier wearing it: his Hamlet was young, dashing, eyes lit as if by candles within them that flickered in the wind of the Dane's indecision. His own sharp, uneven features could not measure up.

One more rehearsal. He fixed his stare on a blank wall and pictured an appreciative audience: well-dressed, well-read, fresh-faced and earnest, like new students at university. He took a deep breath and began with the words even the least of them would recognize.

"To be or not to be, that is the question:

Whether 'tis nobler in the mind to suffer
The slings and arrows of outrageous fortune,
Or to take arms against a sea of troubles
And by opposing end them."

Then abruptly he was dead.

The blackness enveloped him completely. He thought to measure time as Galileo had, against his pulsebeats. But he had no pulse. No breath, no sensations—no physical being. He felt just as he did after one show had closed, before there was another. Empty and alone.

He tried to think back across his life. Only one image came to mind: Sharon's departure.

She had stayed until the baby was born: a boy. She named him Shaun. "After my cousin," she had said. Jeremy knew that both her parents were only children. He was mildly curious who Shaun was, but he didn't ask.

The child was handed over to Sharon's mother—looking younger now, thanks to laser surgery at Sharon's favorite spa. Jeremy never saw the baby. Sharon came home, but not alone.

The heavy antique oak door swung open, shushing against the thick cushion of carpet. The movers' work shoes left imprints in the pile as they marched in behind her. She deployed them like a general, ordering the items closest to the door be taken first, to clear the path for the rest. She planted hands on hips still broad from the recent pregnancy, drumming fingers against pale pink wool. Every so often her voice, still sharp with working-class shrillness, would cut the damp English air as she ordered a mover to take care with a corner, or wrap a painting more carefully.

Jeremy glanced over the top of his script periodically to watch as Sharon supervised the packing up and carting away of her own effects, and several of the more valuable pieces of furniture and art. They were all items she had chosen and, although her taste had improved with age and education, he had never been particularly fond of the things she bought. He wouldn't miss anything she took.

He tried to keep his mind on the lines he was reading, but found his attention drawn repeatedly back to the activity. The study where he sat was really part of the main room that formed the bulk of the ground floor, separated from the rest by style of furnishing rather than by walls.

He turned slightly in his red leather armchair to watch a Victorian side-board wend its way past, the movers looking like ants dwarfed by their burden. The matching china cabinet followed, with Sharon in its wake. Then, from upstairs came her dressing table, the mirror carefully swaddled, and box after box of her clothing. She halted one mover with a shout, and made him hold the box while she tucked a stray corner of yellow linen back inside, and resealed the carton herself.

When the last of the movers had staggered out, silent like pack animals weighed down with their burdens, Sharon and Jeremy were alone. He couldn't remember the last time they had been alone together. She looked around for a moment, surveying what remained, and he saw a hint of sadness. When her gaze swept over him, she stopped. She couldn't hold the eye contact. He opened his mouth to speak.

"Sharon . . ."

For a fraction of a second, the facade came down and he could see the woman he had first loved, the beautiful girl who wanted something better for herself than the usual lot of a working-class wife. He opened his mouth to speak to her, then closed it and looked back down at his script.

The corners of her mouth tilted downward ever so slightly. She blinked twice, quickly, tossed her hair back off her face. "Oh, just get on with your life, won't you?" He heard the door shut behind her.

He felt tears, as much of anger as of pain, welling in his eyes. "I don't want revenge," he whispered. "I just want her back." The sudden, crushing regret made his whole body ache.

But he had no body. He was dead. He brought the lights down on the memory and let the emptiness overtake him. This was the hell of it, he thought, being able to think, to know that he was dying completely alone. And would be that way forever. Slowly, slowly his mind faded as his vision had done before. He let himself slip away.

There was a voice. The construct, no doubt. An implant wouldn't die, would it? He wished it would leave him alone. But he couldn't help hearing the words. Hearing it call him and tell him that he had a future.

It had lost the American accent entirely. The pronunciation was quick, guttural, northern. It sounded very much like his own.

His eyes fluttered open, sore and sticky with the dried tears. He was crumpled awkwardly on the floor of his quarters, the textured rubber surface pressing painfully against the bruises on his back. The thick dark velvet of his costume was badly crushed and creased. He breathed the stale and dirty-smelling air, while groping for the tiny implant behind his ear. The metal was blood-warm.

" . . . There's a divinity that shapes our ends, rough-hew them how we

will . . ." He let the lights come down on him and pitch the tiny room that he was using as a theatre into deep black. The applause, scattered but strong, filled the darkness. Good.

He waited for the construct to comment.

It never did. At last, it left him alone. He didn't want to be alone.

He massaged his hand across the velvet of his costume to smooth it out. It would have to hold up through months of to-be-or-not-to-be's. Months of being Hamlet. Making choices. Alone.

He began to understand the tragedy of it all. ♦

Letters to the Editor: IV

Dear Ted:

I'm afraid I haven't been impressed with the somewhat experimental fiction that's been running in AMAZING of late. Most of these bits and oddments aren't stories at all, but half-thought-out incidents. There is no feeling of process in them; things just happen.

Typical themes—fear of technology, ignorance of how things function, moody nostalgia for primitive settings (perhaps because they're understandable)—combine with a narrow emotional spectrum centered around fear and hatred. Most of the characters seem to assume that desperation is a normal state of mind that doesn't have to be motivated by the events of the story.

I've always thought the more traditional story-telling processes allowed ample opportunity to communicate a kind of density and complexity of thought, a diversity of content, a wide range of emotion. Some of the writers who've been experimenting within sf have expanded the boundaries of the field and we owe them thanks for doing it—Mike Moorcock's "Behold the Man" is a good example. But I fear the efforts that have been appearing in AMAZING along these lines don't work. They're too short, and—what's really fatal—they're unoriginal.

Greg Benford

The problem seems to boil down to the fact that every experiment isn't a winner—but some get published anyway. — TW

(July 1969)

Protectors

Malcolm Beckett

This is Mr. Beckett's first SF story to appear in print, although one suspense story has appeared elsewhere. Three other SF and fantasy stories are due to appear in anthologies during 1994. He tells us that publication in AMAZING® Stories is "a longtime goal accomplished. It's an honor to share these pages with so many great writers—and even more of a thrill than I'd expected."

"Mac" is a native of Montreal and has lived there for most of his life, but is currently located in Missouri, visiting his collaborator Smith Flanary, another new SF writer.

The title "Captain of the Protector-Service Striker *Crom*" was an impressive one. Albet Simps felt more like the captain of an old-fashioned two-man submarine; a home-built one at that. There was no space for a captain's cabin, in fact, no room for even a place that would be his alone to sit in. He was simply the monkey who was there to make sure the arrow got fired at roughly the right time, at roughly the right target.

He had not seen home in four years, and his skinny frame and slack, underworked muscles showed the effects of the condition of no-gravity in which he passed his existence when he was on patrol, as now. His short leaves at the Moon base of the Protector Service were refreshing in some senses, but he was never able to recover the health and vigor he had once felt, and had become sure in the past few years that his deteriorating condition would not allow him to see Earth again. Not until he went there to be buried, at least. He could not remember why he had joined Protection, now. It sometimes seemed that the padded gray and white bulkheads of *Crom* were the only environment he had

ever known, though he still knew better, somewhere deep inside him. He was captain for this month. Willa would take over in three Earth days, and he was looking forward to being crew and purser and body-servant again for thirty days. She would require menial service of him, as she always did, but the terrible responsibility of the cargo they carried, and of its correct dispatch in emergency conditions, would be hers for a bit, and he could relax and be as dependent as his level of tension required him to be. Even now he could feel the tug of his desire to be the doer of tasks rather than the decider. When they had last coupled she had noticed it too, and had crowed a little at his premature sexual passivity. She would have tired of the subordinate role, of course, as would he, thirty-three days from now, but her usurpation of the dominant role in "bed" had irritated him, although he had gone along with it.

For four long years, since the two of them had been paired by the Council committee responsible for such things, they had alternated between captain and captive, and at first it had been exciting.

Hell, being the eyes and ears and muscle for a burrowing humanity, hiding from the Sun and protected from it by neither fur or feathers nor ozone, had seemed a worthy challenge and task at one time.

Now both the protector-role and the alternation in dominance that was still necessary to relieve tension in a species still uneasy in space sometimes felt like just a couple more chores, even when a dominant Willa Mant aroused his sexual desire to heights he thought he had forgotten.

"Touch me there until I tell you to stop," she would command, and he would do so, and be relieved of the decision, and, for a month, or three weeks, that would be what he wanted.

Right now, he wanted to piss, but he had to track the missile he had just sent after the odd asteroid, or comet, or whatever it was. "Who ever heard of a bright silver asteroid?" asked Willa, from just behind his right ear.

He had no answer, so he just grunted. They were not supposed to assess the things they might destroy or deflect, just make sure they could never strike the Earth in pieces of any dangerous size. For all they knew, they could have blasted whole mines of desperately needed raw materials to chunks the size of a fist, and never known it.

"Want to swap now, and relieve the tension a bit early?"

She often asked that, lately. She really wanted the command role. She would be welcome to it soon, just a few days from now, but they both knew what would happen if he surrendered it now. She would have what she thought she wanted, but *Crom* would thenceforth have only one properly functioning crew member, and even she could react badly to the extra dominance that would give her.

Of course, she would acquire a new mate-partner, and that would excite her, he was sure, but she might not be allowed to ship out with him. She, too, required the rules that governed the interchange of position, and might be crippled if he allowed her to alter it. Besides, it was against regs to switch early, and Albet and Willa were both wedded to regulations even more than to each other.

"Scratch my back," he ordered, and, automatically, she did, knowing the right spot to stimulate without being told.

"Now track the bird for a while," he told her. "I'm going below." He used pseudo-nautical terminology as often as he could, partly because it irritated Willa, and partly because it let him pretend he was afloat somewhere on the sunny seas of a pre-Barren Years Earth with an unknown new woman, rather than out in the fringes of human-explored space with a flabby, skinny, wasted female version of himself, trying to pretend that he loved her when they fucked.

"Aye, Captain," she responded, and she did her duty, though she stuck out her tongue as he headed for what he called the "head," and she called the "open-air mini-crapper" when she was in charge.

All functions were performed in the open in this vessel, for it was nothing but a huge mobile missile silo, with a small crew cabin/command pod attached, and there was neither room nor any good technical reason for adding privacy facilities.

She was watching while he urinated, he was sure, and caught his thoughts just in time to avoid an erection at the idea.

Yes, he sighed inwardly, he was certainly ready to let her take over. He had caught himself wanting her to spy on him sexually, rather than the other way around, and that was another sign he recognized, that he was not feeling like a commander, or like any sort of dominant person at all.

"How's she flying?" he called up the tube-corridor to her.

"Straight, at least. Maybe on target, too. We'll know if it'll strike in . . . about fifteen minutes, I think."

"Put tracking on auto, and come to bed." He tried to put a note of tough command in his voice, because sometimes she liked that, but he was really pleading to be held and loved and comforted, and she would know it, and be less loving than she could, just to assert her coming dominance.

Maybe retirement would be possible after the next sortie, and he'd never have to look at her or touch her or need her again.

He headed for the sack they called their bed, and was surprised to find himself eager, after all these times.

Willa left her post slowly. She was not at all eager to be submissive today, but she had to be. Regulations. Three days from now, he'd be her

slave, if she wanted, and that was stimulating enough to make her at least undress on the way.

The switch was long overdue, this time, she thought, as she assumed the position she thought he would like. Next time, or the time after that, she'd make him beg before she gave in to the pig.

The two loneliest creatures in the worlds or out of them managed to find some comfort in each other after all. And perhaps some love as well.

But *Crom*'s bird (bearing the odd name *Conan*, scrawled there by a now long-deceased technician) flew true enough. It was aimed for the dusty silver object that was, in fact, on collision course with Earth, and its automatic guidance was not so rusty as to throw it completely off course. That had happened to *Crom*'s sister vessel, *Vengeance*, only last year, while it had been trying to destroy a more ordinary but larger object. Fragments of both *Vengeance* and the asteroid had been found intermingled some months later.

But the course-correcting rockets of the missile that Albet and Willa had launched were old, too, and the course of the huge weapon deviated just a trifle from the pattern the computer on Earth had laid down for it. The strike would be off center. Never mind: the thing's new course would deviate enough that most of the mathematicians and astronomers of the Protection Intelligence Committee would decide that it would eventually strike the Sun, or at least be captured in an inner-System orbit.

Mating was more a struggle than joyful play. Over quickly, it was the sudden eruption of need in two rather testy mink, rather than a human expression of love or lust. A reflex act, performed in weightlessness as part of the dominance-submission cycle that Command loved too much to examine very closely. It worked, they said. By that they usually meant that it kept the bright young officers out in space until they burned out, and were no threat to those above them on the ladder.

Willa and Albet had been exceptional. They still might be, but they were locked by regulations into a rigorous alternation of roles that neither could see for long enough to break it.

"You got that funny asteroid in the 'scope?"

"Yes." Her reply was slow, almost lazy. Three days to changeover. He'd better assert himself. If he lost the captaincy to her now, they'd be ruined as a team.

He shot down the short tube of the crew pod, landing with a degree of grace he had not known he had on the worn pad at the end, and deflected his course into the little space they called "Navigation," or,

"The Observatory," depending on what they were doing in there at the time.

"Brace, crewman!"

She swam slowly into a position that somewhat resembled an "at attention" stance. Or would have, had she been doing anything but vomiting.

"Shit, Willa, I'm sorry." Albet grabbed a double handful of her sick-soaked uniform, eased her into the "corridor," and thence to the sack.

"You been like this for long, baby?"

"Oh, four years, more or less." The effect of her sarcasm was lost in a second spew that splashed off Albet. He barely noticed.

"All right. Settle if you can. I'll get the medikit."

"What you gonna treat me for? Got a diagnosis, Doc?"

His temper broke for just a second, and he found himself at her throat, quite literally, his hands flexing as he enjoyed the feel of her fragile larynx under his thumbs. Slowly, carefully, he forced himself away from her, slid out into the corridor and broke open the hatch behind which they kept their pitiful supply of medicaments.

There was stuff for pain, stuff for infection, stuff for allergies to the other stuff, but he found nothing at all for nausea.

"Nothing here!" he bellowed.

Weakly: "No. I used it already."

He returned to her side. "How much? How long?"

"Long time. I spit blood once, but that was over a month ago. Albet, what the hell do you care?"

She seemed serious. This woman whom he had loved for aye and aye had thought he would not care that she was vomiting blood.

In response, he just smiled.

"Okay, I remember. I think." Willa's voice was still slow and weak, but there was a smile he hadn't seen in a very long time. How long? He was afraid to remember.

For the first time in an age, the proximity alarm sounded.

He was at his command post seconds before he realized that she would not be at hers—and then she was.

"You can't work like that."

"Why not? I can screw like this. *Captain*." But the force of hatred in her voice was not quite what it had been. There was a soft edge of . . . something else he'd almost forgotten.

"Give me a reading on the alarming object, Crew. If you still remember how."

"Wait . . . two of them! One coming from the silver one we hit, and the other . . ." She burst into laughter that had to be hysterical. "Christ, Albie, it's our fucking relief! We forgot."

Every two years there was supposed to be a relief of all crews. They'd missed the last one. Or it had never come. Collision protection was considered necessary. Protection crews were not. They had been expended, they'd feared, but had gone on working anyway.

"Which is closer?"

"The bogey, of course. What the hell did you expect of Command—efficiency and good timing, too?"

"We once had better timing than we have now."

She looked at the speaker his voice had come from in amazement. Then, softly, "We did, yes."

"Okay, give me the numbers. What's the bogey and when does it get here?"

"Dunno what it is. Collision in . . . thirty hours and a bit."

"And the relief?"

"Forty. What else?"

He laughed. She remembered that laugh. Not too long before, he had laughed it when they met their first target together. An eon ago. But she smiled.

"We could do this job once, honey." It was his turn to look astonished, but he, too, refrained from comment.

Then, "Captain Simps?"

"What?" Suspicious, he allowed no trace of emotion into his tone.

"Two things. One, the bogey just altered its course. Two, Merry Christmas."

That they had been spaced on Boxing Day, the day after Christmas, and that it was their "anniversary" as a team was a yearly joke, but she sounded as though she meant it, for a change.

"Thank you, Willa." The message sank in. "Changed its course? What the fuck do you mean, changed its course? No natural object can do that."

"Merry Christmas, Captain."

And, once again, they were laughing together. The hopeless timing of the fruition of their earliest dream together, to make First Contact with an extrasolar intelligence, was . . . silly enough that they both saw the joke at the same time. Another small miracle of recovered intimacy.

For the human race, all contacts had become dangerous ones. Two huge asteroid strikes in two decades had created a sterling Protection Service. Five decades of nothing special had ruined it. Their own dream, the crew of *Crom*, had been to make Contact. And they would. Disastrously and explosively, probably. After all, they had fired first.

"You think there was intelligence in there?" asked the (for now) captain.

"How else would this thing be headed for us?"

"Fragmentation . . . misplaced charge in our missile . . . asymmetrical explosion . . . I dunno. You think there's somebody inside . . . that?"

"Want to wait and find out?"

Decades of Service discipline said, "No." Albet, on an impulse he never fully understood, said, with considerable surprise in his voice, "You know . . . I think I do. We'll hold any further fire."

It was the first nonreflexive decision he had ever made as a member of the Service. Another generation would have called it a command decision. Willa, sick and relying on the teachings of a creaking, decimated society, called it crazy.

The skin of her face, where it was visible, turned a paler shade, and she made a decision of her own.

"Captain Simps. As a senior officer of Protection, I declare to you that I have perceived in your behavior variations from the teachings and standing orders of the Service which force and permit me to relieve you of command. I believe you, Sir." She looked as astonished as did Albet at her words.

"I note your finding, Crew Mant, and it is logged. Where is another officer who will confirm or refute your conclusion?" For it took two.

"There is no such officer aboard. I therefore respectfully request that I be allowed to contact the relief vessel closing on us now, to seek advice and another qualified opinion in this matter."

"Regretfully, Crew, I inform you that I have declared radio silence due to the proximity of possibly intelligent beings who might be a danger to the Service and to the intelligent races of Earth, and who might interpret your message as a sign that the Earth and the Service are not prepared to meet them on equal or better terms. Denied."

She stared at him. "Where would they have learned to speak Inglis?"

"Hypothetically, from broadcasts on frequencies such as the one you proposed to use."

"That's . . . crazy, Albet. You *are* mad."

An hour later, the argument had been reduced to a slanging match, and neither sounded in the least like an officer of any sort of Service.

"There could be life in there! Who the hell do you think you are, Willa, to decide that *people*, of our race or not, should die?"

"If you were thinking at all with that pea-sized ganglion you call a brain, you'd see that A) there is no intelligence out there, and that B) if there is, *it's retaliating!* Albet, we shot first!"

An hour after that, the crew had cornered the captain in behind the steel bulkhead that separated the tiny navigation chamber from the rest of the vessel with a long carving knife in her hand, and the captain was defending himself with clever defensive swings of a heavy utility pot, and occasionally managing an offensive move or two as well.

It was a standoff. Willa could not get to the radio or the firing post, and Albet couldn't stop her any more permanently than he already had. They only had one knife, and he was looking at the wrong end of it.

For the next eight hours their course went unmonitored, their radio unmanned and their navigational observations unmade. Then Albet got to the radio during a series of yo-yo maneuvers up and down the narrow tube of the ship. When he also made a destructive raid into the wiring of the firing mechanism of the missile tube, he had, in effect, won.

"Captain Mant, I stand relieved." He was two days early, but what the hell.

The new captain, though she might order him a thousand times into quarters-arrest, though she might handcuff him to the outer airlock door and vent the air, would be able to do no more than that. The first mutiny in the history of the Service (or can a captain mutiny?) had achieved its objective.

The putative intelligence drew closer. So did the unarmed Service relief shuttle. Nobody was going anywhere but to a common point. They would rendezvous as predicted, but unProtected.

When Captain Mant found the old piece of rope in a locker and tied her crew to the mini-crapper in the stern of the central tube of the vessel, having first secured his, if not cooperation, then at least lack of resistance, with a long three-quarter-inch bolt she had also found there, it made no difference except to her. History was already written, and the forces of humankind would meet the mass of a possible enemy intruder unarmed and, but for the two of them, unforewarned.

Twelve hours after that, a drone from the damaged robot explorer from Alpha Centauri A, the only one of three drones to survive *Crom's* missile attack, turned on its mapping-scanner and began its second sweep of the third planet from the Sun. It had returned exactly one hundred of its years (exactly 2500 Earth-years, of course, to the day) after its first reconnaissance of the Solar System to verify that signs of civilized life on the planet were, in fact, signs of civilization, and not random variations in the surface texture of the desert and semi-desert where trails and dirt roads had been spotted. The silver-colored reflector that was a part of the drone itself shone with the light of many stars, and the human people, what few of them there were, looked up to see a star shining in their east once again. But theirs was an underground culture, since the ozone had been destroyed. Less of their works could be seen on the surface than had been the case in the ancient Middle East. The only things of Earth construction that might indicate a high degree of civilization were the two ships close at hand, and this sole survivor was the planetary mapping drone, unequipped to scan space

for vessels other than its mother ship. The signal sent by the drone and repeated in a high-powered signal burst sent in the direction of Alpha Centauri said, in effect, "No."

The relief crew arrived on schedule. Willa and Albet were taken from *Crom* for the last time, both in manacles pending trial.

Soon after, *Crom* was decommissioned. The drone's multiband scanner-beam, powerful enough to do damage at close range, without the attenuation of intensity with distance and atmosphere which made it bounce harmlessly off Earthbound objects, had melted almost through one of the hull plates in the forward part of the ship, and she was judged unspaceworthy by the relief-crew and set adrift, to fall into the Sun.

The robot drone returned to the mother ship, also a drone, moved inside, and both suffered the same fate as *Crom*. The nuclear-warhead-tipped missile had done its job after all.

Parting forever at the Service's private spaceport, the last crew of *Crom* were allowed a few supervised moments together. After all, Command said, shaking its head in pity, before they went insane, Albet and Willa had been the best team there was.

"Bye, love," said Captain Willa. She smiled almost warmly. "Merry Christmas."

Albet first glared, then grimaced. He turned away, then back. His expression was still dour.

"You, too, Will." A small, maybe cynical rippling of the upper lip. Or perhaps a smile. "Contact is Contact. Even if we *did* kill the buggers. Merry Christmas, dear. Happy anniversary." ♦

Letters to the Editor: V

Dear Editor:

I read the profile on me with pleasure. I never knew that Sam Moskowitz had enjoyed my writings so much. Seldom have my stories been praised so highly, and his criticism of my other activities pales to insignificance compared to his validation of my fiction.

I'm hopeful that a long new novel (titled *The Violent Man*), which I am in the process of completing, will answer his doubts about my creativity. It's not science fiction, but I'm not through with sf by any means.

A. E. van Vogt
(December 1961)

Ladies' Day

Alfred D'Attore

For Alfred D'Attore, retirement does not equate to inactivity. After winding up a career as an Air Force flier and staff engineer, he obtained an advanced degree in mathematics and a teaching certificate, and spent most of the last two decades pursuing his second career. He has found time to write stories on occasion, and the second one he ever sent out was published in *Analog* in 1973. His most recent excursion into speculative fiction is presented below.

George Adamson was a civilized man, given to quiet thoughtfulness and humble pursuits. But this day was different. George was being put-upon—severely put-upon. This was supposed to be a vacation, a quiet, leisurely trip. Instead, he found himself running blindly through the desert sands of Israel, sweating, straining, even gasping for breath. "Amanda!" he choked. "For God's sake! Slow down!"

Amanda slowed not one whit. "Listen to that bellowing!" she yelled back.

George could certainly hear it. How could he help it? The din was deafening. "This is crazy," he muttered under his breath.

"There's something there, George," went on Amanda. "Something bizarre—unusual."

"It could be dangerous," said George.

She threw him a contemptuous glance.

"At least," he persisted through gulps of air, "let's talk about it. You heard the Israelis. He *ate* someone."

Amanda stopped at that. She turned, and with her hands on her hips, waited for her husband. "You don't believe that crap, do you?"

George stopped too. He was still some distance from his wife, but he was completely winded. "I don't know what to believe," he gasped hoarsely, "but the Israelis were in headlong flight, and they don't panic too easily." He removed a Panama hat and wiped at the sweat streaming down his forehead.

"All right, George," said Amanda. "Remain here, if you wish. I'm going ahead." She turned and strode swiftly toward the northwest.

George watched for a moment, feeling as much perplexed as concerned. As always, Amanda's certainty in all matters left him mute. He took a deep breath and started after her.

Amanda was the class of the family. She was a professor of anthropology at a large university in New York City. Unlike George, who was also a professor, she taught sparingly. Most of the time, she wrote and lectured. She was quite famous. In the forefront of the women's liberation movement, Amanda was considered brilliant, innovative and articulate.

—Or dull, thought George, predictable and vituperative. It depended upon one's point of view.

Undeniably, however, she was successful. This sojourn to the near east was on her. Amanda was paying the bills. George was a nobody. She reminded him of it often.

His wife's excited shouting broke his reverie. Amanda was standing at the edge of a large excavation. They had entered a construction camp. Large, earth-moving equipment and stacks of building material lay all about them. But there were no people. The camp was deserted.

"Quickly, George!" called his wife. "Come and see this!"

George threaded his way resignedly through the abandoned machinery and drew up beside her. He was breathing heavily from his exertions; nonetheless, he caught his breath. Then his eyes widened and his jaw dropped. Rising from a hole in the center of the pit was an unbelievable sight—a huge, conical mass of brown leathery flesh.

Hairless, wrinkled, and very obviously alive, this "thing" rose fully twenty feet to the apex. It was half again that size at the base. It had emerged apparently from beneath the pit, several dislodged boulders and huge clods of earth testifying to the immense force of its entry. A monster! thought George, incredulously. A genuine, bonafide monster!

According to the fleeing Israeli, it had eaten one of the workers. George could believe it now. The creature was mountainous! Moreover, this was only the head! That was apparent, for an eye was perched two-thirds of the way to the crown. There was another located an appropriate distance around the bulk.

George looked for the nose and ears, but they were not readily dis-

cernible, perhaps hidden in the multitude of folds and warty protuberances that spotted the countenance. The mouth, however, was unmistakable—a huge slash stretching the full width of the cone. Presently, it was twisted in pain.

George cleared his throat. He whispered cautiously, "Do you think it's safe to remain?"

"I think so," said Amanda. "The bulk of it is underground. No doubt the Israelis were surprised in the pit. We won't make that mistake."

There was a mound of stones close by George at the edge of the pit. He found a likely spot and sat down. He fanned himself with his hat. "Amanda, can you imagine its full size?"

His wife looked back at the creature and started some mental calculations. Then she gave it up, bending over the edge of the pit instead and examining the creature in more detail. Amanda normally prided herself on her sangfroid. This time, however, she simply could not contain her excitement. "What a find!" she burst forth. "What an outlandish, stupendous find!"

The creature fixed both eyes upon the woman. "Why all the damnable noise?" he growled.

Amanda dropped her glasses. George dropped his hat. "My God!" he exclaimed. "It speaks English!"

"It speaks Latin, Hebrew, and Arabic too," rumbled the creature, "and if people don't stop calling me *it*, I'm going to get surly."

Amanda recovered her composure first. "I wasn't shouting," she said inanely, "I was merely—"

The creature belched—a low-pitched, roaring staccato that assaulted the eardrums and shocked the senses. Amanda screeched and sat down. She coughed convulsively. For once, she was speechless.

George's eyes teared and his stomach churned, but he persevered. Holding a handkerchief to his nose, he struggled to his feet.

"The female seems upset," said the monster.

"Not just the female," croaked George.

"I must apologize," the creature went on. "It was inadvertent, I assure you. I have indigestion, you see. Something I ate. But the female, now . . . I don't meet females too often. Tell me—does she belong to you?"

George nodded. "This is my wife, Amanda. My name is George—George Adamson." He cleared his throat. "May I ask who you are?"

"*Knabe da krum Blagen!*" blared forth the creature in stentorian tones. He listened to the echo. Satisfied, his attention turned back to George. He squinted an eye. "I am the ogre."

"The ogre?" interjected Amanda.

"Ah, madam," said the creature, "I'm delighted to see you have recovered. Yes, I am the original. The one and only, in fact."

"Impossible!"

"Impossible?" repeated the creature. "Impossible? Do you doubt your senses?"

"God, no!" said Amanda, wiping once more at her eyes. "You're real enough—judging by the smell! But why an ogre?"

"Why mankind?" retorted the creature.

"Why indeed!" said Amanda. "But ogres and fairies and such make no sense. They don't fit into the scheme of things."

"Madam, are you asking me to justify my existence? Can you justify yours?"

George laughed.

"Shut up, George!" said his wife.

"Actually," the creature went on, "I can, you know. Justify my existence, that is . . ." The ogre was pensive a moment. George sat down.

"Having destroyed the earth by flood," began the creature, "the Lord made His great covenant with man, establishing that henceforth, He would take no action to interfere in the affairs of men.

"That, of course, is generally known. What is not known is that prior to that time, I was ensconced well into the bowels of the earth. I was to serve ultimately as"—he considered a moment—"as a hedge against an excess of love for man." He "smiled" at an apt choice of words.

"I could have guessed it," said Amanda.

"Well," said the ogre, "such agreements do call for prudence."

"Altogether devious, dishonest, and underhanded," Amanda went on.

The ogre pursed his enormous lips. "Ungenerous, madam. I would say—*most* ungenerous. But not altogether untrue—"

"Then you constitute some sort of threat?"

The creature burped discreetly. "You must pardon me again. My stomach is still a bit upset. But to answer your question—yes, most assuredly. Inevitably, I will destroy mankind. It is my function, my destiny."

"And how is this to come about?"

"Through tests," answered the creature, "scientific tests. At two-thousand-year intervals—give or take a bit—I make my way to the surface and test a human being. I sample the whole man. A somewhat painful procedure, I admit, but swift and sure."

"If mankind is in a state of grace, I get"—he burped again—"indigestion. I then disappear for another test interval. However, if man is corrupt, debased, depraved—if he lacks even the most rudimentary of the cardinal virtues—why then, he sets well upon the stomach. At which point, I shall proceed to eat you all."

"What rubbish!" said Amanda.

"God's truth, madam! The Absolute!"

"What kind of test," demanded Amanda, "relegates the fate of man-

kind to happenstance or caprice? How would you know whom to choose?"

"No need to choose, dear lady. Anyone will do. Man's iniquity is all-pervasive. You know—the sins of the few adhering to the many. And vice versa, of course." A low-pitched, subterranean rumble was heard. The ogre frowned. "As you can hear, it is not yet time."

Then he brightened. "But be assured. My day will come. I have every confidence. I am, after all, *God's ace in the hole!*" He laughed uproariously.

"Amanda!" whispered George worriedly. "Let's get out of here!"

"Don't be a fool!" hissed Amanda. Then she relented a bit. "Listen, George, this is the opportunity of a lifetime. The Israelis will be returning shortly. They may well dispatch this abortion without regard for his scientific value. I want to be here—to forestall them, if possible, or if not, to get as much information as possible prior to that time."

It was an earnest speech, and for Amanda, uncommonly civil. George nodded.

"Harrumph!" said the ogre. "You obviously missed the point of my witticism. Don't you play poker?"

"No," said Amanda, "it's a stupid game. How can you—large as you are—eat two and one-half billion people?"

"Five billion. I've kept count."

"That includes the women. Surely you don't intend to eat us too?"

"Of course."

"Did you sample a woman?"

"No."

"Then where the hell do you get off?"

The ogre's eyes widened in astonishment. "I include women in the term 'mankind'."

"There is a distinction, *Knabe da krum Blagen.*"

"Pshaw!"

"We are equal and separate."

The ogre tossed a belch to the west.

Amanda's cheeks flushed. "Tell me," broke in George, hoping to fore-stall a storm, "how can you possibly eat five billion people?"

"With some regret, I must admit—"

"There are other creatures like you," said Amanda. "There must be."

"There are no others," said the ogre.

"Then it can't be done," said Amanda. She said it with finality.

"Hmmn," mused the ogre. He regarded Amanda at some length with a squinted eye. "It occurs to me, madam, that women are at once dull and discourteous. Or is it just you? I shall now converse with the gentleman. Please don't interrupt."

"Uh," said George, looking at Amanda. Her lips were set and white.
"Uh," he said again, "we wonder at the capacity required to consume five billion people."

"You appreciate," said the ogre, "that there is considerably more of me beneath the ground."

"Even so—"

"And when the hunger is upon me, I'm insatiable."

"But five billion—"

"Last, there is my metabolism: little more than one huge alimentary canal."

"I see," said George doubtfully. He shrugged. "You know, we are not helpless. We have weapons."

"Posh!"

"Poison gases."

The creature yawned.

"The A-bomb."

"Ah," said the ogre, "the nuclear bomb! I had such hopes when you produced the A-bomb. Surely that was it! Mankind's arch iniquity!" He sighed.

"How about it?"

"How about what?"

"The bomb?"

"I'll step aside—"

"I can't accept that."

"—Temporally."

"I don't understand."

"Neither do I," said the ogre, "but the result is predictable. I will eat you all." He threw a belch to the east.

"Eating and shitting continuously," broke in Amanda, "it still can't be done."

The ogre turned a baleful eye toward the woman. "Still argumentative, I see." He turned back to George. "Good sir, it is my intention at all times to be courteous—even urbane. But your wife makes it most difficult. How did you come to choose such a woman?"

"Ah . . ." said George, his eyes darting from the ogre to his wife and back again, "Ah . . ."

"Ingestion," said Amanda precisely, "digestion and elimination."

"Of course," said the ogre.

"And reproduction?"

"Madam?"

"Reproduction. You know—little ogres from big ones?"

"Previously," said the ogre darkly, "I found you discourteous. Now you become offensive."

"I don't wonder."

"And what," asked the ogre, "does that mean?"

Amanda folded her arms. "Your kind often find intelligent, aggressive women offensive."

"My kind?"

"Certainly. Do you think I haven't noticed? Your preoccupation with everything male? It's a dead giveaway. Tell me," she went on, "have you ever sampled a woman?"

"Of course not. In His scheme of things, man is ever above woman. It is natural—even proper—that I sample a male."

"And desirable, no doubt."

"Madam!" roared the ogre. "Do you imply—"

"Amanda!" warned George. "For God's sake! You're making him angry!"

She laughed. "Okay, George, don't shit your pants." She turned back to the ogre. "Perhaps," she conceded, "you're not queer."

The ogre sucked in a breath.

"Tell me," she went on, "are you a eunuch?"

The creature's mouth dropped open, then snapped shut. His teeth ground.

"Hah!" said Amanda. "Look at him turn red!"

Indeed, the mottled brown skin had turned a reddish hue. The ogre did not answer immediately. He seemed to have passed the point of simple, reactive anger. Science, thought George, has now departed. Somehow, this thing has gotten personal.

The ogre spoke. He said quietly, "Madam, are all women like you?"

Amanda felt she had the upper hand. "More or less. Like as not."

"Incredible," murmured the ogre. "that I could have ignored such as you these many millennia—"

"Quite so," said Amanda. She looked at George. "Even our exploiters are beginning to understand."

"I am mandated to test at two-thousand-year intervals—" continued the creature.

"And always a man," said Amanda accusingly.

"Always a man—"

"Presumptuous and insulting," she replied. "Ridiculous too, in view of your neutered state."

"Madam, do we start again?"

"Always, you arrogant crud! Forever!"

"I have heard quite enough," warned the creature.

"Hah! Do you really suppose I fear you?"

"You have cause to fear me," rumbled the ogre ominously, "especially at this moment."

"Amanda!" warned George sharply. "Back off!"

But his wife was riding high. "What?" she exclaimed contemptuously. "From this dung heap?"

"Enough!" roared the ogre.

"This excrescence? This pile of shit?"

"Enough!" the creature thundered.

"This eunuch?"

"Aag!" said the creature. His skin had turned a mottled red, every blemish standing out in bold relief. "Aag!" he said again, strangling on his own spittle.

"Choke!" screamed Amanda gleefully. "Choke, you cockless, ball-less bastard!"

A long, prehensile tongue whipped out and wrapped around the woman's waist. In a flash Amanda was gone, drawn into the awful maw of the creature.

George leaped to his feet, stupefied. He squeezed his eyes tight shut, then pressed his fingers to his ears to block the sounds of mastication. Amanda, he thought, gone! What a horror! What a tragedy! What the hell . . .

George opened his eyes. Surely he should be more upset than this. He scratched his head puzzledly and squinted at the creature, who was now sucking on a tooth. Then George came to attention and placed his hat over his heart. Solemnly, he bowed his head. Ten seconds seemed about right.

He resumed his seat and lit his pipe. "You don't seem particularly distressed," he remarked to the ogre.

"It's too early to tell," answered the creature. "It takes a while." He burped surreptitiously. "She was kind of tasty, though. Tender, with a sort of piquant flavor."

"A reflection of her personality," offered George.

"No doubt," said the ogre. "You know," he continued after a while, "I feel pretty good."

"No upset?"

"None." The ogre hummed off key. The vibration transmitted into and through the ground, causing George's vision to dance. It had the effect of putting a halo around things. An omen? wondered George.

"Tell me," went on the ogre, "what will you do without women?"

George relit his pipe. "Rather quietly, I expect."

The silence that followed was complete. George sucked on his pipe and listened for gas or subterranean rumbles. He heard nothing.

"Mr. Adamson?"

"Yes?"

"Perhaps you had best move back—a considerable way."

George nodded. He tapped out his pipe and started walking to the southwest. Shortly, the ground started to tremble and he quickened his pace. When the trembling became violent, he broke into a run.

By the time the shaking reached earthquake proportions, George was in full flight. He glanced over his shoulder. A mountain was rearing its bulk above the terrain, arms first, then shoulders, and finally the trunk. Soon, the ogre was towering like some super-colossus above the plain of the Negev.

When George next turned, he beheld the monster in all his impossible height and breath. The ogre was humanoid, thick-set but well formed except for a flattened, cone-shaped, disproportionate head.

The ogre threw back his head and roared with laughter. It was a thunderous sound, full of eagerness and zest for life. "Sbalom!" he called to George and started to turn away.

"Wait!" called George. "Wait! A question!"

The monster turned back and bent at the waist. "Quickly, now! I'm famished!"

"The name—*Knabe da krum Blagen*—it has connotations . . . vaguely Germanic . . ."

"Pre-Sumerian," said the ogre.

"What does it mean?"

"Literally," laughed the creature, "*Head of a Pin!*"

Pinhead! thought George. Most appropriate.

The ogre laughed again, uproariously. Then, waving good-bye, he started north toward Tel Aviv. ♦

Letters to the Editor: VI

Dear Mr. Whit:

Thank you for the publication of my story in the September issue. One slight correction, however: My name is Hensley, not Henley.

I will forgive you for you are not alone in your error. I sold a story to *Dapper* once and they spelled it Hemsley, which is an alias I use only when I'm forging checks around Milford, Pennsylvania. That was a story I collaborated on with Alex Pension. Harlan Ellisong and I did one once for *Swank* and they left my name off the contents page altogether, which showed excellent taste on their part.

I just wanted to set the record straight as I know my myriads of fans have complained. I, of course, never make mistakes.

Joe L. Hensley
(November 1969)

Where Space Travel Went Wrong

Frederik Pohl

When I first began to get interested in the idea of traveling in space I was ten or eleven years old, and my notions of how it would work were formed by the stories I was reading at the time—stories in science-fiction magazines like *Amazing*—and they all made it sound pretty simple. You got into your spaceship, you stepped on the gas, and next thing you knew you were getting ready to land on Mars or the Moon or just about anywhere.

You had your choice of several different kinds of spaceships, too. Some were ordinary rockets—single-stage jobbers that looked more or less like a contemporary ICBM—but there were lots of others, too. Jules Verne sent his travelers off to circumnavigate

the Moon by firing them out of a hellish big cannon, and so did H. G. Wells in the movie *Things to Come*. Wells's other famous spaceship didn't need any kind of explosives at all; it was a metal globe plated with Cavorite, an unusual material that was opaque to gravity, so you could close off the Earth's gravitation on most of the globe but open a window pointing toward, say, the Moon, and then simply fall toward it.

Doc Smith's *Skylark of Space* operated on atomic energy, though a kind of atomic energy that wasn't much like the stuff we now have. To make the *Skylark* go, you plated a bar of copper with an unusual (and still undiscovered) substance called X-metal, and then when you

passed an electric current through the bar, it would very rapidly pull you in whatever direction the bar was pointed.

Lester del Rey had a spaceship that crawled along the lines of flux of the Earth's magnetic field like a spider on a web; A. E. van Vogt made his spaceships go by means of the "adeledicnander force"—not otherwise defined. But all these propulsion systems had something in common: they were cheap, simple, and fast as anything.

All this struck me as perfectly feasible stuff, and I really expected that sometime in the pretty near future—certainly by, say, 1960 or 1980 at the latest—there would be regular passenger service to Mars and Venus. Remember, I was pretty young at the time.

Then something happened that caused me to grow up fast. I discovered that there was an organization of scientists who were busily at work on getting a head start in solving some of the problems of space travel, even way back there in the 1930s. The organization was called the American Rocket Society. They got together every month or so, in places like the Engineering Society Building or the Natural History Museum, and their meetings were open to the public. That meant that even a thirteen- or fourteen-year-old kid like me was allowed to come and sit in on them. So, naturally, I did.

That may have been a mistake.

There wasn't much said about going to Mars at the meetings of the American Rocket Society. What there was was long reports, by people like Alfred Africano and G. Edward Pendray, on the results of their last static-test firings. They had set themselves the task of trying to find the optimal nozzle configuration for a rocket engine, and they were methodically trying one design after another and reporting the results in detail—in *excruciating* detail—to the meetings.

I didn't stick around for very much of that. Two or three meetings, just to see if it was going to get any livelier; it didn't, and I was out of there. These people with their plumbers'-pipe-and-gunpowder rockets just couldn't compete with the shiny, high-tech battleships and luxury liners in the science-fiction magazines. These were two radically different approaches to space travel, and at least one of them had to be going in the wrong direction.

I found more pleasure in the science-fiction approach. It wasn't very realistic, of course. There just don't seem to be any such things as Cavorite or the adeledicnander force, so those particular propulsion systems were certainly wrong turnings as far as the real world was concerned. As real-world space travel began to develop, it concentrated on the rocket approach, greatly helped by Werner von Braun's demon-

stration of advanced rocket designs as he blew up one piece of London after another in World War II.

The funny thing is that now, half a century later, it begins to look to me as though it wasn't just science fiction that went the wrong way. I suspect there were some wrong turnings in the real-world approach, too.

Part of that suspicion is shared by everybody who watches television or reads newspapers, because we all know that a lot of things have gone wrong with the space program in the last few years. Some of them have been major catastrophes, such as the main fuel-tank explosion of the *Challenger* that destroyed the vessel and grounded the shuttle program for years—and, of course, killed everybody on board in the process. Some have been bloodless disasters, like the meticulously prepared, but incorrect, shaping of the mirror of the Hubble Space Telescope, repaired only at great expense and effort. Some have been relatively minor, and probably hardly even noticed by most people, like the current impaired function of the Compton Gamma Ray Observatory.

All of these mishaps have been studied—some of them over and over again—and causes have been found. The problem with the Compton Gamma Ray Observatory appears to be simply a bad lot of batteries; one of its batter-

ies is already dead, and one other isn't working very well. That's even worse than it sounds, though, because batteries from that same batch, all manufactured by Gates Aerospace Battery Company, are in several other major scientific satellites, including the Upper Atmosphere Research Satellite, the Ocean Topography Experiment and the Extreme Ultraviolet Explorer; and if all the batteries in this batch turn out to be equally unreliable, that means that every one of these satellites may have a shortened, perhaps drastically shortened, lifespan. That's several billion dollars worth of satellites, with all their instrumentation intact, that before long may very well be spinning around up there and producing nothing because of their dead batteries.

I don't know what quality checks are required of batteries before they are installed in a spacecraft. I do know that in the cases of the *Challenger* and the Hubble Telescope, quality control was very tight and thorough, and the fact that these two went sour anyway wasn't because no one bothered to check. It was because when the checks were made, and it turned out that there were problems, someone swept the problems under the rug. At Perkin-Elmer, the contractors for the Hubble's main mirror, when one test indicated the mirror was ground to the wrong curvature, the supervisors decided to be-

lieve that it was the testing equipment that was wrong, not the mirror; at Morton Thiokol, they knew they had a continuing, unsolved problem with the O-ring seals on all the shuttles, and their engineers had specifically warned that the things were not designed to operate at such low temperatures as obtained at the time of the *Challenger* launch anyway. But higher-ups overruled the engineers and let that fatal launch proceed.

All right. Accidents will happen. We all know that. None of us is so naive as to believe that the conquest of space is possible without ever losing any spacecraft and human lives at all. But accidents have causes. They have proximate causes—like the ones we've just identified on those three cases—but it's worth asking ourselves if all these accidents have even more troublesome overriding causes, the kinds that make for *unnecessary* accidents.

I think there are such overriding causes, and I think they still exist, and I think the space program will continue to suffer serious and quite unnecessary disasters until they are corrected.

One of those causes is bureaucratic.

I'm not going to spend much time trying to convince you of this, because somebody else has made the case a lot better than I ever could. That person is the late Nobel laureate physicist Rich-

ard Feynman. More or less by accident, Feynman was drafted onto the presidential commission formed to study the *Challenger* accident. He took the job seriously; he made himself a full-time investigator, looking into every phase of the shuttle program; he was appalled at some of the things he found, and he put the whole experience into a report and a journal. The report is in the official commission report as an appendix—because Feynman essentially blackmailed them into including it—but if you want to read the whole text of Feynman's experiences with the commission, journal and all, the only place I know to find it is in the posthumous collection of Feynman's writings entitled *What Do You Care What Other People Think?*

I have to digress for a moment here so I can say something about Richard Feynman, I never met the man. I wanted to meet him for many reasons, not least for the rather trivial reason that he seemed to be the only person other than myself who remembered that a place called Tannu Tuva had ever existed—it stuck in his mind, as it had in mine, because of the odd name and location—and he had managed once actually to set foot on the place; I hoped to find out from him what it was like. In 1988 I accepted an invitation to be Writer Guest of Honor at a science-fiction convention in Minneapolis, although

traveling there would be complicated by the fact that I was living in England at the time, very largely because Feynman had promised to be there as Scientist Guest of Honor. But we didn't meet, because he died, rather unexpectedly, a month or two before the convention.

Still, although we never met, I felt—I still feel—as though I knew him fairly well, because when I read things he has written they sound exactly as though they had been written by my lifelong friend Isaac Asimov. Feynman and Isaac had a lot in common. They were both big-city boys from the outskirts of New York—Isaac from Flatbush, Feynman from Far Rockaway; they both wanted to go to Columbia University but in the event had to get their educations elsewhere because they were Jewish and the quota for Jewish students was filled; they both were well aware they were smarter than most people, and not at all embarrassed to admit it, but took that inborn gift of intelligence as a responsibility to explain what they understood to those who were less fortunately endowed.

I think that if it had happened that Isaac had been chosen for the *Challenger* commission instead of Dick Feynman, he would have taken it upon himself to do just what Feynman did: to find out exactly what had gone wrong—both in the hardware and in the bureaucracy. There were ques-

tions that needed to be asked. Why did the top brass at NASA recite, as an article of faith, that the chances of catastrophic failure of a shuttle mission were no worse than one in a hundred thousand, when the historical record of the first twenty-nine hundred American space launches of all kinds showed a failure rate not much better than one in twenty-five? Why was it possible for official doctrine on the solid-fuel booster to say of the defective seals that caused the *Challenger* explosion at one point that "the lack of a good secondary seal in the field joint is most critical and measures to reduce joint rotation should be incorporated as soon as possible to reduce criticality" and at another point four paragraphs later to say, flatly contradicting the previous statement, that "it is safe to continue flying existing design"? And, although there were others on the commission and in NASA who knew that the seals were inadequate—including at least one astronaut, who was aware that his own life was in danger because of them—why was it finally up to Dick Feynman to speak out when everyone else kept silent, and to make the problem public with his demonstration of what happened to a piece of booster-rocket field joint sealing material in a glass of ice water?

I won't go any farther with what Feynman had to say—he answers all those questions and a

lot more very well in *What Do You Care What Other People Think?*—and if you haven't read it, I urge you to do so as soon as possible. But I have some remarks of my own that I would like to make on this general subject, namely, what has gone wrong with our space program.

To begin with, the most serious fault in the NASA bureaucracy, from which many other faults naturally flow, is that it *is* a bureaucracy. It is paid for by taxpayers' money, and it has to go cap in hand to Congress to beg for the money it gets. That means, first, that the top leaders of NASA are not in a position to speak very candidly about their problems, because any expressions of doubt will very reliably be reflected in cuts in appropriations. The second thing it means is that NASA has to do what Congress wants every government contractor to do, and that is to spread the work around so that each last Congressperson's district gets some taste of the jobs and funds that come with the work. Dick Feynman's attempts to understand what was happening with the shuttle engines were greatly complicated by, as he says, the fact that "NASA's Marshall Space Center designed the engine, Rocketdyne built them, Lockheed wrote the instructions and NASA's Kennedy Space Center installed them!" And, of course, those are just the main contractors—they don't come anywhere

near counting the people like Morton Thiokol, in charge of the O-ring seals, or the Parker Seal Company, which sold Morton Thiokol the rubber they made the seals out of, or any of the countless other commercial enterprises who produced parts, services, materials, and components that went into the shuttle.

Now, from what we've already said, it's possible to identify a lot of areas where things can go wrong. Involving enterprises scattered over most of a continent to produce a shuttle certainly can lead to confusion, and confusion can easily lead to mistakes and accidents. Also certainly, that same policy of broadly based suppliers may well lead to some physical damage—the solid-fuel tanks frequently get squeezed slightly out of true round while they're being shipped from the place where they're manufactured to the place where they're filled, for instance, and then they have to be somehow jawboned back into shape before they can be used.

Then there's the simple question of money. The people in the commercial enterprises may well be motivated to do good work because of their commitment to space exploration, but they are certainly also motivated to get the damn job done so they can get on with something else and hold their jobs, too. When they make a decision on an important

question—to reject the test results on the Hubble mirror, say, or to discount the engineers' concerns on the shuttle O-rings—they may base that decision purely on the question of what is best for the shuttle (we would like to hope so), but if they don't have somewhere in the back of their minds what is good for their company as well, they just aren't living in the real world.

So, from these facts some people might reach new policy conclusions. I know, for instance, that some have concluded that it might be good to privatize the whole deal, take it all away from NASA and let market forces build us a new space program. I suppose in some sense that might work, although I'm not sure what sort of space program we would wind up with. There isn't really much private profit to be had in space right now. Apart from communications—already a nearly saturated market—about the only money to be currently made in space comes from the government anyway, one way or another. I do not really see any private enterprise eagerly awaiting the chance to pay for a lunar colony or a Solar Polar flyby or a manned landing on Mars; and if the government were going to pay for it, the government would also want to make sure it was getting what it was paying for. Which would mean, almost certainly, retaining most of the present structure of NASA, but under a different name.

Alternatively, some people might propose going in the opposite direction: take it all out of private hands and turn it over to government factories using government workers, making whatever the government orders them to make.

Actually, we've seen that done. It's the way the Soviet space program worked, for its entire history until just the other day. In some ways that's not an unattractive model, either, because our political sentiments shouldn't make us forget that the Soviets sure got a lot done in their space activities. The first satellite in orbit, the first man in space, the first Venus flyby, the first mapping of the lunar Farside—those were all magnificent Soviet accomplishments. Of course, it was all done at a great price that shortchanged the rest of the economy—the Soviets could put a man in space, but they couldn't put toilet paper in the supermarkets. So, no, we don't want to copy that model, either, thank you.

But where does that leave us? Is there some still more fundamental flaw in the space programs of the whole human race?

I think there is. I think that, without exception, the space programs of every nation on Earth are making the same mistake, and that is putting all their efforts into rocket ships of one design or another.

Now, although I'm still a science-

fiction reader (as well as writer), I am not hopelessly enamored of fantastic visions. I know that nobody's ever invented anything like Cavorite or the adeledicnan-der force, and if I want to transport a chunk of something into Low Earth Orbit any time in the next few years I don't have any choice about how I go about doing it. What I have to do is strap it on top of a tank of oxygen and another tank of liquid hydrogen or hydrocarbon, and then I have to ignite them so the explosion will blast my package right out of Earth's atmosphere.

But think what that means. It's because we're using rockets to get out of Earth's gravity well that we have to rely on three-stage, brute-strength lifters like the Saturn V or monstrous aggregations like the shuttle. Our lift-off vehicles guzzle fuel like a million tail-finned Cadillacs drag-racing at once, and eighty percent of the fuel they burn goes into the sole purpose of lifting that very fuel off the ground.

That's too high a price to pay. It's why any space activity is unbearably overpriced, and why a dead battery means a dead satellite, and a bent mirror a spoiled telescope.

These aren't big problems, you know. We could fix the things in no time if we could just reach them, but we can't reach them. Once they're launched they're out of here; it takes a shuttle mission to get close to them again,

and that means that particular shuttle mission is foreclosed from doing much of anything else. For that matter, that's why we have to have such Rube Goldbergian contraptions as the shuttle itself —what a friend of mine who worked on it in its early stages calls a "Polish bomber," i.e., a bomber with its bomb bay on top—a really outlandish design with a million things that can go wrong, and sometimes do. And when you come right down to it, that's also one of the major reasons why we have to have all this giant bureaucracy to oversee the whole thing and hold it together.

Surface to orbit, that's where the real problem lies. Once our spacecraft are in Low Earth Orbit, things get a lot easier. Then they can go anywhere, just about. Even if we still have to use chemical rockets to make them go (instead of, perhaps, solar sails, or ion drives, or nuclear thrust), we can still get most anywhere in the solar system with reasonable fuel economy and generally bearable travel times.

But they have to get up out of Earth's gravity well before any of that can happen, and it's that first step that's the killer.

So is there any way out of this dilemma? Is there any imaginable technology that could get us into LEO other than massive rocket thrust?

I can't say there is, for sure . . . but if you squint a little bit, you

can see that there *are* other possibilities out on the horizon.

One of them isn't that far away, even. That's the hybrid rocket jet: you start your launch vehicle off with an air-breathing jet engine to get up to speed and altitude, and then you cut in the rockets.

That doesn't save all the cost of lifting the fuel that does the lifting, of course, but if it only saves part of it—say, if it means only 70 percent of the lifted mass has to be fuel plus oxidizer instead of the present 80 percent—that multiplies the payload by a factor, I would guess, of four or five (assuming the weight of the ship itself is essentially unchanged) and thus cuts the cost of getting an object into orbit to something like a quarter of the present price.

We might be able to do even better than that. The jet-rocket hybrid saves only on the mass of oxygen to be lifted; what if you could avoid lifting part of the fuel itself?

A few months ago one scientist, gazing up at those long white streamers of contrails that follow high-altitude aircraft, had an idea. He suggested that a tanker plane might take off before the launch and spray fuel in with its exhaust plume; then the rocket follows, flying through the trail, and as it goes it scoops up that pre-planted fuel along with the air to burn it.

I have some doubts about that

one, I admit. Apart from anything else, you would want to make sure that your rocket was moving faster than the velocity of propagation of the flame, otherwise you're just flying through a sausage of fire. But it might work. And if we go a little farther out, there are proposals a lot more hopeful still.

Robert L. Forward lists a couple of them in the "Magic Beanstalks" chapter of his wonderful book, *Future Magic*—unfortunately, like so many other good books, now out of print due to the demented business practices of the publishing industry.

Perhaps the best known of these "magic beanstalks" is the Skyhook, invented independently by the Russian Yuri Artsutanov in 1957 and by a team of American oceanographers in 1966—and reinvented yet again, in more engineering detail, by Jerome Pearson in 1975. You may have read about that one in Arthur C. Clarke's *The Fountains of Paradise*, as well as a great many other science-fiction stories (including a variation of it in my own *The Singers of Time*, with Jack Williamson). The Skyhook is pretty simple in concept. You start with a manufacturing satellite in geostationary orbit, 36,000 kilometers up; you install cable-making machines and start extruding two cables, one down to the Earth's surface, the other straight up as a counterbalance. You control the rate of extrusion careful-

ly, to keep their masses in balance, and when your Earthbound cable touches the surface you tie it down and start rigging an elevator.

Is that one practical? Sure it is—technically. You do need to invent some very high-tensile-strength materials for the cable, but that's probably not too hard. The real problem is the same thing that's the problem with most of the good ideas in the world we live in: money. *Serious* money. You're talking about putting several tens of thousands of tons of satellite, cable, and machinery in orbit just to get it started, and if you have to do that by flying them up in rockets, even if you could do it at a hopeful but probably unreal cost of maybe a thousand dollars a pound (in the shuttle it's more like ten thousand), that's at least a fast hundred billion dollars or so just in startup costs.

Of course, if you already have a manufacturing satellite in orbit, say an O'Neill habitat, you can get your raw materials from asteroids or railgun them up from the surface of the Moon and save a bundle. But how do you get all those things in place without first having your Skyhook?

But then, with your elevator in place, then you're in gravy. Build a Mars rocket on the surface. Hoist it up to geostationary orbit in pieces on the Skyhook elevators; assemble it, turn the key in the ignition, and go.

There's a considerably cheaper

version of the Skyhook available, called (by Forward, anyway) the Rotavator. This was originally thought up by that same Yuri Art-sutanov, in 1969, but no one outside the Soviet Union apparently heard of it, and it was invented all over again in this country by my friend (and collaborator—if we ever get it finished—on a forthcoming science-fiction novel) Hans Moravec of the Robotics Institute at Carnegie-Mellon University. The central satellite for the Rotavator orbits a lot closer to Earth than the Skyhook, 8,500 kilometers up. It too spins out a pair of cables, but they don't stand still; they rotate, like a giant windmill, so that each of them just barely touches the surface of the Earth once or twice in each revolution. As it touches, you jump off, or load your cargo on; you have to do it pretty snappily, because you have just about a minute to get it done in each touchdown.

Actually, of course, that part's not too hard. You and whatever cargo is involved are pre-loaded into capsules about the size of the body of a 727, and the loading and unloading, which is probably done magnetically, can be accomplished in a lot less than a minute. The real drawback, compared to the Skyhook, is that you can only load the Rotavator when the cable is at the surface, while the Skyhook is in business twenty-four hours a day. Still, the Rotavator is less than a quarter the

mass, and far less than a quarter the cost, of the Skyhook.

There are variations on the Rotavator—for instance, the one called the Bolo—that are cheaper still, but they suffer from the same problem as the Skyhook: you have to get a whole lot of mass into orbit expensively before you can start getting any mass into orbit cheaply.

You could, however, build a sort of Skyhook in a different way, from the ground up. That's the Space Fountain, which was first proposed when a bunch of guys were yakking it up on GEnie; the group included Marvin Minsky, another friend (and also a collaborator on a science-fiction novel, though with Harry Harrison), plus Hans Moravec and a third artificial-intelligence honcho, John McCarthy, and a couple of laser scientists, Lowell Wood and Roderick Hyde. Later on Hyde, with the help of Bob Forward, worked out detailed calculations and reached the conclusion that the thing could be made to work.

The Space Fountain is supported from the surface, but not by a rigid framework. Instead, a stream of particles is directed upward through a hollow tower. At each stage some of the particles' kinetic energy is extracted magnetically to support that stage of the tower; when the stream reaches the top, it is made to do a U-turn by a bending magnet and returns down the same structure.

As it goes down again it is accelerated, both by gravity and by the electrical energy the magnets have extracted from the upward-bound stream at each level; then it is given a little extra push on the ground to make up for friction and other losses and starts back up again.

Because this is a dynamic structure, each stage can be given whatever little twist is necessary to counteract such outside influences as winds or the Coriolis force. Because each stage is supported independently, it can be built from the ground up, one stage at a time.

The Space Fountain isn't cheap, either. But it would certainly cost a lot less than some things we seem to have had no trouble finding the money for, like SDI or the occasional war.

As far as I know, the Space Fountain hasn't been used in any science-fiction stories yet, but it will be quite soon—in *Mars Plus*, a collaboration between Thomas T. Thomas and myself (and a sequel to my own old *Man Plus*) that will be out from Baen about the same time this magazine is published.

Finally, there's the one I like best of all. I've used it in several stories, including a couple of the Heechee novels: Keith Lofstrom's Launch Loop. The Lofstrom Loop exists in several models, in increasingly staggering size; the one I have used is a few kilometers long, a framework in the gen-

eral shape of a parallelogram, with a magnetic tape circulating around it; your launch capsule is magnetically snagged onto the circulating tape, accelerated by the tape as it spins, and released at the top after achieving escape velocity.

Now . . . will any of these things actually work?

I don't know. I think they might—not because I'm qualified to judge the engineering of the case but because I respect the people who have proposed them.

They would certainly be ex-

pensive. They would also, I'm afraid, be terribly tempting targets for one of the terrorist groups, for whatever cause, that seem to be multiplying so rapidly in our world. But when you add up all the negatives, the positive side of the ledger is still greater in my estimation. At the very least, I think, some serious money should be spent on research in these areas to find out just how feasible they are, because what they would give us is priceless. It is nothing more nor less than the universe. ♦

In a career spanning more than 60 years, Frederik Pohl has been about everything that it is possible to be in the field of science fiction, from consecrated fan and struggling poet to critic, literary agent, teacher, book and magazine editor, and, above all, writer.

His work in the field has brought him three Nebula Awards—plus a Grand Master Nebula—and six Hugo Awards, and he is the only person ever to have won the Hugo as a writer and as an editor.

His two newest novels have just hit the bookstores in April: *Mars Plus*, from Baen, is a sequel to the Nebula-winning *Man Plus*, and was written in collaboration with Thomas T. Thomas. *The Voices of Heaven*, from Tor, is "neither a sequel nor a collaboration," as Fred points out.

We're proud of the fact that it was this magazine to which the young Fred Pohl made his first sale—a poem published in the October 1937 issue under the name of Elton V. Andrews. "I'm delighted to be in the magazine again," says Fred, "not least because it was Amazing that made me a pro. It's true what they say: you never forget your first."

Writing, Science Fiction, and Family Values

Pamela Sargent

Several years ago, a cousin of mine briefly toyed with the idea of having a big family reunion, one of those gatherings where all the parents and children, aunts, uncles, and cousins, including ones nobody in the family had seen for years, would get together in one place and cement our family bonds.

This was a fairly ambitious enterprise, given that we had scattered all over the place. Finding up-to-date addresses would have been the least of my cousin's problems. People in my family have, with some exceptions, tended to be exogamous, to use the anthropological phrase that refers to those who marry outside the group. As a result, my relatives by blood and marriage

include WASPs with Ivy League degrees, a couple of Israeli settlers, Iranian exiles in Switzerland, assorted Australians and New Zealanders, a citizen of Japan, some Mormons, several Mohawks, a couple of Georgia Tech graduates who are devout fundamentalist Christians, a few Belgians from Brussels, and a contingent who call Bogotá, Colombia, home.

So I had only two questions for my cousin when she ran her reunion proposal past me. The first was, "Who are you going to hire to provide security?" The second was, "Are you sure you want to start another world war?"

She had second thoughts after that, and we never did have that reunion. This may be just as well, since I come from a long line of

people who've often believed that warm family feelings were best expressed over long distances.

I was thinking of this never-to-be-held reunion, as well as about traditional family values or the lack of them in science fiction, during that festival of hatred known as the 1992 Republican National Convention. Perhaps that spectacle was what inspired such thoughts. Pat Buchanan's oratory in particular was enough to terrify one twelve-year-old I know. Religious warfare for the United States! Well, I thought, if it's good enough for Northern Ireland and Bosnia, maybe it's good enough for us. Given that the Republicans and other conservative forces had also been going on for some time about our pressing need for good family values, I couldn't help contemplating the relationship between strong, really powerful family ties and violence.

For instance, an extremely traditional custom known as the blood feud has been a part of human history for some time, and in many ways the blood feud is a family thing. This point is made in *High Albania* (Boston: The Beacon Press, 1987), a book by a remarkable woman named Edith Durham, an Englishwoman who spent the second half of her life living and traveling in the most remote areas of Albania during the early part of this century. What she found there was that much of Albanian life was dominated by

the need to preserve one's honor through vengeance. In fact, many feuds were an inheritance, passed on from father to son or from one brother or relative to another. Families knew that there was no honor for them until one of their number killed anyone responsible for their dishonor—and such a killing, needless to say, would usually begin yet another blood feud. There was, according to Edith Durham, no escape from the law of blood. As she wrote:

The unwritten law of blood is to the Albanian as is the Fury of Greek tragedy. It drives him inexorably to his doom. The curse of blood is upon him when he is born, and it sends him to an early grave . . .

The man whose honour has been soiled must cleanse it. Until he has done so he is degraded in the eyes of all—an outcast from his fellows, treated contemptuously at all gatherings . . . he can show his face no more among them—and to clean his honour he kills.

For these people, it made no difference whether the blood feud was the result of actions in which they had no part, or that it might have been incurred by actions that took place before they were even born. If your family inherited the blood feud, it was yours as well. For, as Edith Durham points out, "the 'family' was the entity; the individual had no separate existence."

This kind of behavior is not as alien to our own society as some might prefer to think. Another ex-

ploration, in fictional form, of the possible consequences of blood feuds became in recent years one of our most popular movie sagas; I'm referring to *The Godfather*. Don Vito Corleone would have been the first to stand up for traditional family values.

In much science fiction, however, families seem almost absent. Like most generalizations, this one can be attacked; there are exceptions, the books of Robert A. Heinlein being one of the more notable. Still, this is the general impression I got when I first started reading science fiction, and the exceptions haven't been quite numerous enough yet to erase that impression.

Some of the early science fiction I read seemed to involve people, almost inevitably males, getting together and going off to invent things and have adventures. Classic examples of this kind of story are John W. Campbell's stories (in *Islands of Space* [1957] and *Invaders from the Infinite* [1961]) about three fellows named Arcot, Morey, and Wade who eventually go off in a spaceship with a fourth man named Fuller to make a tour of the galaxy; during their adventures, they manage to invent nearly every piece of advanced technology you can imagine. Actually, there is a family tie of a sort in these stories. Morey's father is the wealthy president of a vast corporation, and provides much of the financing for the adventures of his son

and his son's colleagues. But I don't think this is exactly what is meant by a story about a family.

There are probably some sociological reasons for this apparent absence of families in science fiction. Typically, most science fiction readers in the United States begin reading SF during their teens or just before reaching adolescence. Now, American teenagers, as a rule, aren't terribly enthralled by the notion of "family." In fact, it's probably safe to say that most teenagers in this country live in dread of having to go out anywhere with their parents, and suffer mightily at the behavioral lapses of other family members in public. Nowadays, it may be even worse—you have to worry about the lapses of your stepmother, or your mother's boyfriend, along with various step-siblings.

The family, in whatever form, is something to escape from at that age, at least temporarily. Since science fiction is regarded by many as a kind of "children's literature," or something to be put aside when one is an adult, it may not be surprising that a fair amount of SF should seem adolescent in tone and themes. Guys going off to have adventures, thus escaping from both female contemporaries and their own moms. Apparently unprepossessing people discovering that they have special powers or are actually something akin to secret masters of the universe. Stories about mu-

tants—I certainly felt like one when I was in my teens, and sometimes like an alien as well. A young reader could get very far away from any oppressive family circumstances in both time and space, for a little while anyway.

Thomas M. Disch has written about this particular aspect of the genre in an essay (in *Science Fiction at Large*, edited by Peter Nicholls [Harper & Row, 1976]) entitled "The Embarrassments of Science Fiction." Like most of the science fiction readers he knew, his taste for this kind of literature was developed at around age thirteen. As he pointed out:

Consider . . . how many classic novels and stories in the genre are about children of exceptional wisdom and power. There was an early anthology, *Children of Wonder*, which I doted on, devoted to this sole theme. There are, as well, van Vogt's *Slan*, Sturgeon's *More Than Human*, Wyndham's . . . *Rebirth*, Pangborn's *A Mirror for Observers*, and major novels by Clement, Clarke, Asimov, and Blish—in all of which the protagonists are children. May it not be safely assumed that one reason for this is that such books were written for children? . . .

The emotional limitations of children's literature are even more restrictive. There are, here and there, children bright enough to cope with the *Scientific American* or even the *Times Literary Supplement*, but crucial aspects of adult experience remain boring even to these prodigies. At the cinema children fail to see the necessity for love scenes, and if a whole movie were to prove to be

about nothing else, then they would just as soon not sit through it. No less an authority than Kingsley Amis has pronounced sex and love as being outside the sphere of interest proper to science fiction. Other subjects commonly dealt with by mainstream writers are also presumed not to be of interest to SF readers, such as the nature of the class system and the real exercise of power within that system.

Among the other things that might be presumed not to be of interest to science fiction readers are elaborate explorations of family and kinship, or how power is exercised within families.

Maybe one of the more recent offshoots of this "children's literature" Disch mentioned is cyberpunk writing, with its angst-ridden loners and hackers. Now there's a role model that must appeal to a lot of kids! But even Disch admitted that his theory had its limitations, and the fact is that more science fiction writers seem to be exploring family relationships these days. In Bruce Sterling's novel *Islands in the Net* (Arbor House, 1988), his protagonist Laura has to look out for her baby during the course of her adventures. This led to a lot of my colleagues and some critics saying, after the book came out, "Wow, isn't that great, a cyberpunk writer actually writing about a woman with a baby," as if this were the most striking literary innovation in years. In 1992, Lois McMaster Bujold won a Hugo for her novel *Bararrayar* (Baen,

1991), which, as she put it, is a novel about her hero's mother. Among recent novels, Judith Moffett's *Time, Like an Ever-Rolling Stream* (St. Martin's, 1992) and Susan Palwick's *Flying in Place* (Tor, 1992) are both books which deal sensitively with dysfunctional family relationships in science-fictional settings.

Maybe one reason for this trend is that more women are writing science fiction and, as Marilyn Quayle put it at the Republican convention, devotion to families and children is allegedly part of fulfilling our "essential nature" as women. But I prefer to think that it's because feminism, in addition to opening up the so-called outside world to women, has at least begun to draw men more toward the domestic side of life and its rewards. Yet another reason for this trend may simply be that a lot of us who read science fiction are getting older, and family considerations matter more to us older folks now. Also, as it happens, teenagers aren't reading as much science fiction any more, what with video games, computers, and other distractions competing for their attention.

Still, there is much of value in the so-called "adolescent" forms of science fiction. A young reader, while escaping in time and space, can get a sense that things might be different. This is a useful and constructive outlook to cultivate, and one I wish the publishers of young adult science fic-

tion would do more to encourage. Instead, as one critic, Perry Nodelman, has pointed out in an essay called "Out There in Children's Science Fiction: Forward Into the Past" (1985) the protagonists of such books often rebel against restrictive, technological societies and escape to societies more like our own, or ones that are even more agrarian or non-technological. In other words, technology isn't beneficial, and maybe we're better off without much of it. Try telling that to young people who spend so many happy hours with computers, Nintendo, and VCRs, and who are usually far more proficient in using such tools than adults. A book such as *Orbital Resonance* by John Barnes (Tor, 1991) is the exception in publishing science fiction for younger readers.

But what about science fiction for adults, and the apparent lack of family (or families) in it?

In 1975, Brian Aldiss and Harry Harrison edited and published a book called *Hell's Cartographers* (Harper & Row), which consisted of long autobiographical essays by science fiction writers. The writers who contributed to the book, in addition to Aldiss and Harrison, were Robert Silverberg, Damon Knight, Alfred Bester, and Frederik Pohl. Of this admittedly small sample, four of the six writers were only children, without any brothers or sisters.

I found this intriguing, but for-

got about it until several years later, when I did an informal survey of my own. At the time, I was one of nine writers who had a round-robin letter going around; I would write a letter and mail it to the next person on the list, and eventually a package of letters from everyone else would arrive in my mailbox. Out of curiosity, I asked the others about their birth order. There had been a couple of studies published about the effects of being the oldest, the middle, or the youngest child in one's family, and about whether the size of a family could affect the IQs of the children; I was curious about the birth order of my colleagues.

Out of the nine of us, admittedly an unscientific sample, four were only children. One was a twin, one was the younger of two children, and two were the older child in families with two children. I am the oldest child in my family, but was apparently the only one in this group of writers who had to grow up in a crowd, with brothers and a sister.

This preponderance of only children certainly seemed to be a statistical anomaly. Maybe I was onto something here: another possible sociological reason for the absence of family in science fiction.

Could it be that being an only child might predispose one in some way to science fiction? Could that account for the lack of certain details of family life in much of the literature? The only

child necessarily experiences family life in a different way from those of us who grow up amid siblings. Life is somewhat more solitary, maybe good training for a writer in some ways (although one could also argue that growing up in a large and noisy family may be useful training for a writer; it kept me able to write when, for a few months, my next-door neighbors were members of a rock band who liked to rehearse at all hours). Even more important, the only child is, in a real sense, the center of his or her world, at least until he starts school—maybe even after that as far as his parents are concerned. It's also been my observation that most of the only children I've known, both my childhood friends and the children of my friends, tend to be precocious.

But there is a price to be paid for this paradise. You may be special as an only child, but there's no sister or brother around to take some of the pressure off of you to perform. The only child never has the special kind of bond you can have, if you're fortunate, with sisters and brothers when you're all finally adults, with a shared family history in common. The only child is, in many ways, one who is set apart.

Does this only child begin to sound like a lot of characters in science fiction?

It would be interesting to see if an unusually large number of science fiction writers are only

children or the oldest ones in their families. (We who are the oldest children in our families have one thing in common with only children: We had paradise once, but then lost it; the effects of that surely last, even when you have no conscious memory of having once been the center of the universe.) It may be that this is the case with writers in general, and not peculiar to science fiction, which brings me to the nature of the writer's life itself, and its relationship to family life.

It is probably safe to say that without family life, much of literature as we know it wouldn't exist. It's also fairly clear, when one looks at the writing, the memoirs, and the biographies of most writers, that the relationships between writers and their families are usually problematic—and that's putting it diplomatically. Gore Vidal, whose mother was, according to one recent account, alcoholic, intermittently crazy, vicious, and inclined to sleep around, has said that a miserable childhood is almost a prerequisite for becoming a writer.

Parenthood for the writer can be even more difficult. I recall a visit to another writer's home some years back. As he watched his two young children at play, he began to speculate about which one of them might eventually write the more bitter memoir about him. God help the writer who has a child who later de-

cides to go into the family business, so to speak; he may, as did John Cheever, produce a daughter who will reveal all his peccadillos to the world. A truly successful or celebrated writer may indeed become her child's richest mother lode of material.

These problems may arise because the writer's life, much of the time, has to be a solitary one, and that kind of existence may not be conducive to a happy family life. There comes the time, and it comes often, when the writer must shut everyone else out. She has to close the door to the room where she does her writing, or shoo everyone away from the spot she writes in if she doesn't have a room of her own. A writer I know was faced with this choice: He had finally put together the money to add a room to his house. Two of his children still shared a bedroom, and were longing for rooms of their own; he wanted to have a real office of his own in which to write. Guess who won that argument!

When the writer isn't shutting people out, he is absorbed in his research, his reading, his observations, and his reactions to all of that. He is, to a large degree, absorbed in himself. Joan Didion, in her essay "On Keeping a Notebook" (in *Slouching Toward Bethlehem* [Simon & Schuster, 1979]), captured this aspect of the writer's life well:

Remember what it was like to be me: that is always the point.

It is a difficult point to admit. We are brought up in the ethic that others, any others, all others, are by definition more interesting than ourselves . . . Only the very young and the very old may recount their dreams at breakfast, dwell upon self, interrupt with memories of beach picnics and favorite Liberty lawn dresses and the rainbow trout in a creek near Colorado Springs. The rest of us are expected, rightly, to affect absorption in other people's favorite dresses, other people's trout.

And so we do. But our notebooks give us away, for however dutifully we record what we see around us, the common denominator of all we see is always, transparently, shamelessly, the implacable "I."

That "implacable I" may not be a great asset to a strong, solid family life.

On top of that, writers are always betraying, or at least being tempted to betray, the people around them, and their families—spouses, grandparents, parents, and children—are often such a rich source of material that it's hard to pass up the opportunity to make use of it. Fortunately, such autobiographical material usually becomes so changed and transmuted in the writing, especially in science fiction or fantasy, where the backgrounds, ideas and settings will inevitably alter the characters, that even your original sources may not recognize themselves in your story.

It's also sobering to realize that the way you see a particular person is not often the way that per-

son sees himself. Several years ago, I wrote a story called "The Shrine," which was eventually produced for the television program *Tales from the Darkside*, a story about a mother and daughter that reflected my own sometimes difficult relationship with my mother. After the story was first published, I lived in dread of what might happen if my mother ever saw it. When she finally did read "The Shrine," her reaction was completely unexpected; she identified with the daughter, not the mother. I had forgotten that she was a daughter, too, and also one with a mother whom she thought she had failed in some way.

There seems to be a basic incompatibility between family life and the writing life. I could probably make the same assertion about family life and a life devoted to scientific research or any number of other professions, but for writers, many of whom must do their writing at home, the tensions may be more exaggerated or pronounced.

When I first began writing, a book that helped me clarify some of my own thoughts, and that might even have contributed to some of my later decisions, was Tillie Olsen's *Silences*. Olsen's subject in the essays that make up this book is the relationship between circumstances—class, color, sex, the times, the social climate into which one is born—and the creation of written litera-

ture. Writing makes certain demands, she points out, and if the writer is unable to meet these demands, when in fact they aren't the primary demands of her life, the result may be atrophy, unfinished work, minor work, a block, failed efforts, or even complete silence. In her essay "Silences in Literature" (in *Silences*, Delacorte Press, 1978) she writes:

Twenty years went by on the writing of *Ship of Fools*, while Katherine Anne Porter, who needed only two, was "trying to get to that table, to that typewriter, away from my jobs of teaching and trooping this country and of keeping house." "Your subconscious needed that time to grow the layers of pearl," she was told. Perhaps, perhaps, but I doubt it. Subterranean forces can make you wait, but they are very finicky about the kind of waiting it has to be. Before they will feed the creator back, they must be fed, passionately fed, what needs to be worked on. "We hold up our desire as one places a magnet over a composite dust from which the particle of iron will suddenly jump up," says Paul Valéry. A receptive waiting, that means, not demands which prevent "an undistracted center of being." And when the response comes, availability to work must be immediate. If not used at once, all may vanish as a dream; worse, future creation may be endangered—for only the removal and development of the material frees the forces for further work.

Tillie Olsen was only too aware of how family life can prevent the development of that "undistracted center of being." She began to

write and publish as a young woman, but having to rear and support four children kept her from writing for twenty years; she began writing again only in her mid-forties. I quote from her essay again:

Balzac . . . described creation in terms of motherhood. Yes, in intelligent passionate motherhood there are similarities, and in more than the toil and patience. The calling upon total capacities; the reliving and new using of the past; the comprehensions; the fascination, absorption, intensity. All almost certain death to creation . . .

Not because the capacities to create no longer exist, or the need... but because the circumstances for sustained creation have been almost impossible. The need cannot be first. It can have at best, only part self, part time . . . More than in any other human relationship, overwhelmingly more, motherhood means being instantly interruptable, responsive, responsible. Children need one *now* (and remember, in our society, the family must often try to be the center for love and health the outside world is not). The very fact that these are real needs, that one feels for them as one's own (love, not duty); *that there is no one else responsible for those needs*, gives them primacy. It is distraction, not meditation, that becomes habitual; interruption, not continuity; spasmodic, not constant toil. The rest has been said here. Work interrupted, deferred, relinquished, makes blockage—at best, lesser accomplishment. Unused capacities atrophy, cease to be.

Clearly, there are exceptions, those who have escaped this fate,

writers who manage to bring up children, have solid marriages or relationships, and even spend a lot of time at outside work or a demanding full-time profession, and yet are still able to produce their work. Tillie Olsen would not call them "exceptions," she would call them "survivors." For that is really what they are, people who have managed to survive adverse circumstances that have silenced too many others. Their readers also may not see how many emotional casualties they have left in their wake, or what kinds of support systems they have. I recently heard the behind-the-scenes story of one apparently successful writer (I mention no names, because he's not the only one in this position) who has a full-time profession, a wife and family, and still writes a fair number of novels. How does he do it? I asked. I was told that his wife, who handles all the child care, has a housekeeper; he has secretaries at home and at work; and the only things he really has to pay attention to are his job and his writing. And even he has had his prolonged silences.

You can't do it all, even when it seems as though you can. When I started writing—in my case, fairly early, since I sold my first story when I was twenty—I became very conscious of how many writers, many but not all of them women, didn't really get going as writers until they were in their thirties, or even later. It was the

demands of life, often family life, that delayed most of them; I don't think it was because they weren't ready to write, or had nothing to say when younger. They are survivors, too. You can be sure that others just as talented never got back to writing or never started writing at all.

These difficulties are no longer confined to women, if indeed they ever really were in the past. Supporting a family could silence a male writer as effectively as caring for one could silence a female writer. As more men take on domestic and child care duties, and more women the financial responsibility for their children, more of us may come to an appreciation of how difficult and demanding these balancing acts are. The more different kinds of work you take on, the more likely it is that you'll do a mediocre job at almost everything, since you can't give anything your all. Family life suffers greatly when the members of families are torn in so many different and conflicting directions.

If there were ever a reason to radically revise our assumptions about what society is or should provide, and what our lives should be, this is it.

I've gone through some of the possible reasons for, if I may put it in this provocative way, the lack of family values in science fiction. That science fiction may be, at least in part, a children's lit-

erature; that the life a writer leads affects what he writes; that the upbringing writers have had may shape their work—maybe all of these things have something to do with that absence of family. The trouble with such sociological and psychological explanations is that, because they can explain a lot, one can be tempted into thinking that they explain everything, and they don't. There may be a more profound reason than anything I've mentioned so far for the apparent lack of devotion to family values in science fiction.

It is this: The family, our own family, is our first encounter, our earliest experience, with an authority that cannot be questioned, that must be obeyed, on which we are utterly dependent, and which at least gives lip service to tradition, if not outright obeisance to it. Often the family looks to the past, and probably some idealized past, for their notions of how things ought to be, even when it's increasingly obvious things can never be the same again. No matter how progressive or eccentric your own family might be (the fact that separation and divorce go back four generations in my own family didn't keep my mother and father from holding marriage up to me as an ideal), you probably grew up feeling the pull of ties you knew you could never completely escape. At its best, this may give you a great emotional security, bonds

with people who will always be there for you. At its worst, it may drag you into painful and destructive obligations, financial or psychological dependence, rationalized abuse, crippling guilt, and even the world of the blood feud. Authority, tradition, stability, and custom, the values the family seems to uphold, are so often the enemies of innovation and inquiry, exactly the values that we often like to think or hope science fiction promotes.

Perhaps science fiction is in fact a kind of criticism of family values as they have existed throughout much of human history, as well as a recognition of the fact that we are, in the end, each of us alone, in a universe utterly indifferent to us. It may be that this is the more mature attitude underlying what many still think of as a youthful literature. Maybe a sign of science fiction's increasing maturity is its growing understanding that even our most deeply rooted assumptions about what men and women are and what human life is can be challenged and changed.

Science fiction not only can, as much of it already does, give us a sense of the different forms human families can take, and the forms they may take in the future (for the fact is that there is no one "traditional" family structure); it can also give us a sense of our kinship with all beings. A movie such as *E.T.*, which is as much about a family as it is about

anything else, gave a wide audience a sense of the kinship we might share with even an alien being, but a lot of science fiction prepared the way for that movie. We are, as Carl Sagan has put it, made up of "star stuff," the primordial matter of the universe. We are already related to everything. As Charles Pellegrino writes in *Unearthing Atlantis: An Archaeological Odyssey* (Random House, 1991):

Our bodies ripple with energy-releasing and energy-capturing molecules that conduct symphonies written on DNA and performed by protein. The music might have begun at one time or another, in the exhalations and regurgitations of volcanoes. It begins to

look as if the composer in our lives is the earth itself, and that the poets were right all along. We live, every one of us, on the surface of a parent, not just a planet.

Our families shouldn't be groups that provide us with security and a refuge at the cost of shutting others out, but people willing to call others, those like us and those unlike us, both the species of our own world and the possible alien beings we have yet to meet, their brothers and sisters. Those are our *true* family values.

This essay is based on a speech given at Philcon, the 52nd Annual Philadelphia Science Fiction Conference, on November 13, 1992.

Pamela Sargent is one of science fiction's most accomplished novelists, anthologists, and short-story writers. Her most recent major achievement was winning the 1992 Nebula Award for Best Novella for "Danny Goes to Mars." Early in her career she won acclaim as the editor of the Women of Wonder series of anthologies. Her novel *Venus of Dreams* has been selected by Easton Press for inclusion in its "Masterpieces of Science Fiction" series.

Pamela's latest novel is *Ruler of the Sky*, a historical novel about Genghis Khan, which was published in 1993. As an offshoot of the research she did for that book, she created "The Sleeping Serpent," an alternate-history novelette that appeared in the January 1992 issue of AMAZING® Stories. She is also the author of "New Threads in the Tapestry," an essay on the work of Elisabeth Vonarburg, which was published in our November 1992 issue.

Iceworlds, Waterworlds, and Inside-Out Oceans

Stephen L. Gillett

What's the most abundant rock in the outer Solar System?

Ice. Ordinary solid H₂O.

In fact, ice is probably the most abundant rock in the entire Universe, simply because both its constituent elements are common: hydrogen makes up something like three-quarters of all the atoms in the universe, and oxygen is the most abundant heavy element. And, of course, lots of the Universe is *cold*.

So iceworlds are likely to be among the most common in the Universe. Let's look at some of the Solar System examples, and then (as usual) use them as a point of departure.

For one thing, if the world is relatively close to the Sun, the ice isn't quite a rock. It will flow over geologic time, like a vastly

sluggish glacier. This has happened to Ganymede and Callisto, Jupiter's largest satellites. Ancient impact craters on these objects now look painted-on, because the surfaces are so smooth. The craters no longer are depressions with raised rims; over billions of years, the rims have sunk and the centers filled in as the ice has flowed.

Another thing that can happen when you stack up hundreds of kilometers of solid H₂O is that some of it melts. Many of the larger iceworlds have had water (or at least water-solution) layers inside at least occasionally in the geologic past. We all know that ice is less dense than water, because ice floats. The other side of that is: if you put ice under pressure, it melts. (Ice skates work be-

cause of this: a thin layer of water, formed under the blade by the pressure of the person standing on it, provides a low-friction surface the skate can glide over.)

There's even a layer of water at the base of the ice sheet here and there in Antarctica.

In addition, planets get warmer inside, because their internal heat can't escape quickly. Some of this heat is left over from accretion; other heat is generated by the decay of natural, long-lived radioactive elements (uranium, thorium, potassium) which are present in rock. (Depending on whether an iceworld is "differentiated," the rock may all be tucked into a core deep below the ice, or it may be scattered higgledy-piggledy throughout the ice.) In yet other cases, tidal friction makes heat; tidal flexing of the satellite, as it rotates around its primary, dissipates orbital energy as heat into the interior.

So you might expect the ice inside an iceworld to melt, sooner or later, and you'd be right, at least in part. Jupiter's Moon-sized satellite Europa, for example, although mostly rock, is sheathed with an ice layer maybe 100 kilometers thick. A water layer may underlie this cover, right above the rock.

Actually, when we say "ice" we mean only the lowest-pressure form of solid H_2O —ice-I, the kind you find in the freezer. Under thousands of atmospheres' pressure, though, other crystal-

line arrangements of H_2O molecules become stable. They are named ice-II, ice-III, etc., and are all denser than liquid water. Such high-density phases probably exist deep within the larger Solar System iceworlds such as Ganymede and Callisto. Ice-II may even occur in worlds as small as the Saturnian moon Rhea, with a diameter of about 1500 km. It depends on how rock and ice are distributed within the satellite; if rock is dispersed throughout, in the undifferentiated "pudding-stone" texture, higher pressure ice phases will occur than if all the rock is gathered into a central core.

(Kurt Vonnegut's *Cat's Cradle* proposed that the discovery of ice-IX, a form of H_2O more stable than liquid water, led to the destruction of all life on Earth, because liquid H_2O recrystallized into ice-IX on contact with a "seed" of it. This is fantasy, though: it's hardly likely that a stable phase—that is, a particular stable arrangement of water molecules—would not have been stumbled into by nature a few billion years ago!)

Anyway, watery layers aren't so thick or so common as you might expect, though, for two reasons. First, at very high pressures the denser ice phases become stable. So under *very* high pressure liquid water freezes again. Second, liquid water is very good at conducting heat; it convects just like a boiling teaket-

tle. That means a water layer inside a planet cools off the planet underneath very efficiently, so that over geologic time, as the inside cools, the water layer tends to freeze again. Furthermore, a layer needn't even be liquid to flow; look at a glacier! So as the interior gets warmer, ice itself tends to begin convecting and cool it off, before actual melting occurs.

Melting, then, depends on how fast the heat can get out versus how rapidly it's supplied. You need to feed in heat quickly enough that it can't be lost by convection.

In Europa's case, a rocky world much like the Moon lies below the ice layer. The heat diffusing out of this rock by itself may be enough to keep the ice at the base of this cover molten. More likely, though, tidal heating helps substantially. (Of course, the innermost large satellite of Jupiter, Io, has ferocious volcanism driven by tidal heating. Europa's tidal heating is much less than Io's but is still not negligible.)

You could test for such a "deepocean" by running a seismic line on Europa; what the oil patch calls "doodlebugging." You set out an array of little seismometers—"geophones"—and then set off a small seismic source at a known time and location. (A charge of dynamite works well.) The signals received by the geophones can then tell you a lot about the subsurface structure. In

the case of Europa, a liquid layer would not conduct seismic shear (S) waves; it will conduct pressure (P) waves only. So it would stand out like the proverbial sore thumb.

If enough melting occurs, liquid water can erupt. This seems to happen frequently (geologically speaking) on Europa. Its surface is very smooth, with none of the impact craters we expect. Apparently the surface is covered by new ice often enough to bury the impacts that occur. Presumably water spills out at the surface as "lava" once in a while when cracks let some reach the surface.

Erupting liquid water is a bit of a problem, though: it's denser than ice. Lavas rise through rock because they're buoyant: that is, the molten rock is less dense than solid rock. Obviously this won't work for "lavas" of water surrounded by "rock" of water ice. They'd tend to sink instead.

What probably happens on Europa is that the water "overshoots" its equilibrium level and so reaches the surface anyway. In other cases, the surrounding ice may be unusually dense because it's dirty. A sprinkling of dust, rock fragments, and so on can make ice denser than water.

Despite the problems of maintaining molten layers in an ice-world, in the whole Universe liquid water may be far more common inside worlds than on them. This isn't something that's

come through in science-fiction writing. Our Earth, with its warm wisps of liquid water clinging to the outside, may be the anomaly.

Maybe such deep oceans contain life—although it seems a long shot, because what would that life do for an energy source? Without solar energy, it's hard to power any lifeforms. Obviously there's no photosynthesis! Maybe, though, life could use the heat leaking out of the interior as an energy source, something like the deep-sea communities living in oceanic rift zones on Earth. Europa, with a Moon-sized mass of rock below the ice layer, has especially been a favorite place for speculations on such "deeplife."

Satellites beyond Jupiter, out where things are even colder, are even icier; water out there is a rock indeed. But because of the intense cold, these worlds also contain compounds even more volatile than H₂O. Water ice can form odd "compounds" with many gases, and at low temperatures these "clathrates" can be quite stable. The name, from the Greek word for "cage," comes about because individual gas molecules are "caged" in a framework of water molecules. Ice-I has a very open structure in which other molecules can fit among the H₂O molecules.

Ammonia clathrate is particularly interesting, because unlike methane, carbon monoxide, or nitrogen (other common "guest" molecules), ammonia (formula

NH₃) mixes readily with *liquid* water (household "ammonia" is a dilute solution of NH₃ in water). And such solutions are liquid to much lower temperatures than either ammonia or water separately (as I described in "Thallasogens I," AMAZING® Stories, December 1992). A 1/1 "eutectic" mixture of ammonia and water, for example, is liquid to -98° C, almost 100 degrees colder than water itself.

Such ammoniacal solutions can make for "lavas" on cold worlds indeed. They also would solve the "eruption" problem. Since an NH₃-H₂O mixture is less dense than ice, it will not have difficulty rising through an ice crust. Saturn's small satellite Enceladus seems to erupt such a mixture occasionally, probably created by tidal melting. Like Europa, this moon has a brilliant white surface that is largely free of impact craters, and it must get "resurfaced" fairly often. Similarly, Saturn's large moon Titan probably has a thick layer of water-ammonia solution deep below its crust.

The outer Solar System also shows evidence of lots of fossil tidal melting. Triton, for instance, the large satellite of Neptune, is in a strange orbit that suggests an unusual and probably violent history. It circles Neptune in a close-in orbit that is essentially indistinguishable from a perfect circle. So far, so good, except: the orbit is retrograde. That is, Triton

orbits Neptune opposite to the direction the planet spins, and also opposite to the direction Neptune revolves in its orbit. No other large satellite in the solar system has such an orbit.

Current thinking is that Triton was originally a planetesimal that, when Neptune was nearly full grown, collided head-on with an already formed satellite of Neptune's that was in an ordinary "prograde" orbit. The collision slowed Triton to the point that it could be captured by Neptune's gravity. The rest of the Neptune system supports some such scenario. Neptune has only one satellite (Nereid) farther out than Triton, and that satellite also has a weird orbit; although Nereid's orbit is prograde, it is extremely elliptical. By contrast, the Voyager flyby in 1989 discovered four new Neptunian satellites *inward* of Triton, and these satellites are all are "well behaved": they have nearly circular prograde orbits. They seem to be the relict "regular" part of Neptune's satellite system, like the satellite systems of the other outer planets. Everything farther out seems to have been disrupted.

After its capture Triton initially would have been in a highly elliptical orbit, but over geologic time that orbit would have been "circularized" by tidal friction (see "Dances with Gravity," AMAZING Stories, October 1993). This would have dissipated an enormous amount of Triton's orbital

energy as heat, enough to melt Triton completely several times over.

Models suggest Triton was a "waterworld," with oceans several hundred kilometers deep lying over a core of rock, for perhaps as long as half a billion years. Now, though, all that water has become utterly solid ice. Any molten layer left inside must be very thin indeed. In fact, Triton now has the coldest surface known in the solar system (a mere 38 kelvins). It is splashed with brilliant white nitrogen frost, which is replenished by liquid nitrogen geysers driven by solar heating during the local "summertime."

Triton is still being tidally braked, but at a much slower rate, and is slowly spiraling into Neptune. It will collide with Neptune within the next billion years (unless, of course, our descendants have dismantled it by then).

Uranus's moon Miranda, which is only about 500 kilometers in diameter, similarly seems to have gone through an extended melting event in the geologic past. As with Triton, the source of the heating seems to have been tidal friction. In Miranda's case, though, no catastrophic impact was involved. It seems the gravitational evolution of the Uranian system at one point put Miranda in a "resonance" that caused major tidal flexing, much as Jupiter's satellite Io undergoes right now. Miranda may have been largely

molten for a few hundred million years. As energy continued to be lost from its orbit, though, the orbit changed enough that this resonance lock was broken, and Miranda soon refroze.

Triton and Miranda suggest an SF setting no one has used: the gradual refreezing of an iceworld that had been temporarily (geologically speaking) melted by tidal friction. For a few hundred million years or so, a vast water ocean might lie incongruously far from the central star, in the cold outer reaches of a planetary system. That might be long enough for life to originate and flourish, especially if the iceworld had been "seeded" by (say) spores or microbes wafted off an Earthlike world closer in. No doubt, even in its heyday the ocean would be largely crusted over by an icecap, because of the intense cold right at the surface. Just as with Earth's polar oceans, though, such a cap would help insulate the water below and postpone its freezing.

A more interesting—if ultimately more tragic—scenario than the hypothetical deeplife below Europa's crust!

Considering life leads to another notion: what about introducing it? Most iceworlds contain the basic raw materials for life, the CHON (carbon-hydrogen-oxygen-nitrogen) elements. They're especially heavy, of course, on the H and the O, but nitrogen and carbon are present in ammonia and organic compounds.

(Traces of organic compounds, for example, are thought to give the dirty brown color to Ganymede and Callisto. Saturn's giant satellite Titan, with a thick, largely nitrogen atmosphere, also contains a "smog" of organic compounds.)

"Terraforming" such worlds, at least in the sense of making habitats for humanity, as in Heinlein's *Farmer in the Sky* or Benford's *Jupiter Project*, probably isn't practical. Living on an iceworld will be like living on an ice cap hundreds of miles deep. If you warm things up to Earthlike temperatures and the ice begins to melt, you'll have a *very* serious problem!

But "habitats for humanity" may be a bit chauvinistic. I've suggested elsewhere that Titan, with its already thick atmosphere, may be much easier to make habitable for Earth life than would be Mars or Venus. But since the result would hardly be Earthlike, "terraforming" is really not the right word. ("Bioforming," maybe?) The result of bioforming Titan is likely to be a vast, oxygen-free ocean that will probably smell like a cross between a refinery and a sewage plant. It may be heaven for microbes, but—why should we bother? One reason, besides the philosophical one of extending life into the universe, might be to make a planet-sized factory for Earth-life products; foodstuffs, for example.

And to conclude with another

SF takeoff: consider what might happen to an iceworld when its parent star evolves into a red giant. As the star vastly increases its luminosity, a relatively close ice-world like Callisto or Ganymede is going to melt . . . and the result will be a global ocean hundreds of miles deep, truly a waterworld,

and one likely to last longer than one formed by tidal melting.

Reference:

Burns, J. A., and M. S. Matthews, eds., *Satellites*, University of Arizona Press, 1986.

Another exhaustive volume in the U of A's Space Science series.

Steve Gillett has been writing science columns for AMAZING® Stories since January 1991 and also writes speculative science articles for other SF publications. He also occasionally writes fiction under a pseudonym.

He has recently fled back to academia; after a stint as a consulting geologist, he is now a research associate at the Mackay School of Mines, University of Nevada, Reno, where among other things he works on Paleozoic paleomagnetism, including its relationship to mineralization in the Great Basin, lunar resources, and seismic risk at Yucca Mountain, Nevada, the proposed high-level nuclear waste repository.

It occurs to us that it's a very good thing Steve's science articles are easier to understand than his job description. . . .

Our Lady of the Machine

James Lawson Alan Dean Foster

"James Lawson" was an unknown when his first story, "Sanctuary," appeared in the November 1988 issue of AMAZING® Stories—unknown, that is, except to Alan Dean Foster and a select few others. Now it can be told: Alan Dean Foster is James Lawson.

As Alan tells it, "The Montezuma Strip stories [of which the one here is the fifth and latest] were written under the name James Lawson because I'd never used a pseudonym before and thought it might be fun to see who could spot the style. Some folks did, many didn't." The name is an homage to one of Alan's favorite SF stories, Eric Frank Russell's "Design for Great-Day," in which the main protagonist is called . . . you guessed it.

Now there are enough Montezuma Strip stories for them to be compiled into a book, which is scheduled for release in mid-1995 under the author's real name. The story you're about to read was the second-place prize winner in a contest sponsored by the Polytechnic University of Cataluna (Spain) for best unpublished short SF novel. It's still a winner, although it's not unpublished any more.

I

"God had him killed because he wouldn't pay off?"

"That's what the widow told us." Not a hint of a smile lightened the expression on the captain's face. It would have seemed an alien intrusion at best. Cooperman didn't smile very often. It wasn't part of his job description.

Cardenas dissected what he'd been told as he let his attention drift past his superior. From the office situated midway up the triangular police tower he could see a good deal of sweltering downtown Nogales and out into the Strip beyond. Assembly and design plants sprawled like kinked metal ropes across the desert, the muscles of the most pow-

erful industrial connurbation the world had ever known. The shielded structures gleamed fiery chrome and bronze at eventide, the unyielding southwest sun staining them with red and gold patinas.

An occasional clutch of determined, huddled vegetation signifying the site of a park or sardonically set-aside riparian zone put forth a feeble green scream against the tidal waves of heat that were reflected from pavement and wall, bridge and tower. Sinews of program roads and the tendons of high-capacity transport induction strips knotted the energetic coils of commerce together.

Amid such relentless mercantile fervor, humans ventured fitfully from building to building, corpuscles and cells traveling via air-conditioned tubes, minuscule individual minds vital to the continued economic health of the aggregate commercial organism. Thanks to the interminable inventiveness and energy of such individuals, the Strip had grown to become the engine that powered a sizable chunk of the world's GNP.

Inspector Angel Cardenas knew much of it intimately and was completely at home in its smoldering, fevered concourses and backways for all that he rarely encountered anything or anyone truly likable within.

As he became aware that the captain was waiting on him, he returned his gaze to the man seated on the other side of the desk. Not an easily unsettled sort, Cooperman looked anxious. Clearly he expected some response to the information he'd just provided. Cardenas cleared his throat.

"I'm not a particularly religious man, Shawn. But if I were, I think I'd find it hard to believe in a deity that stoops to common extortion."

"Not extortion," Cooperman corrected him dourly. "Failure to contribute to the support of the poor."

"Ah, yes. To the poor extortionists." Cardenas's wry grin caused the drooping points of his impressive mustache to rise ever so slightly. "It might be nice to start with a fact or two, if not an honest lead. Do we have anything to go on besides the theological rantings of half-hysterical widows?"

"Damn *poquito*." The captain shuffled through a pile of printouts on his desk like an aborigine digging for witchhity grubs before finally shoving a hardcopy at his guest. Cardenas took it and read deliberately, his transplanted ice-blue eyes missing nothing on the tattle sheet.

"Initially there was a flurry of charges." Cooperman chewed on the sedimentary remnants of a thumbnail. "Regular chorus of complaints. Then information dried up. Couldn't check with the usual sources because there are no usual sources for this sort of thing."

Cardenas sniffed, wrinkling his mustache. "When it's made clear to the people on the street that the federales can't keep citizens from be-

ing killed, the survivors tend to go noncommunico pretty quick." He leaned forward to toss the hardcopy. It landed neatly atop the pile. "This is small squash. Local loco. Why call me in? I'm not bored."

Cooperman regarded him from the depths of deep-set burnt umber eyes that had crawled over plenty of bodies before they'd been relegated to pushing papers. "You're our best intuit, Angel. This isn't your usual cut-and-waste-'em racket. I agree it looks straightforward enough on the surface, but there's something farking sophisticated going on here, and the mibble on the pave is that it's spreading. You know how this kind of protection-extortion works; you persuade or vape a few of the doubtful and the rest soon fall in line."

Cardenas nodded understandingly. He reached down to pet the dog that wasn't there and caught himself halfway, wondering if the captain had noticed. "Come on, Shawn. Let's have a little *verdad* here. Why pick on me?"

The captain coughed into a closed fist. "Graveyard shift supervisor at Mondadoroko Tools over in Nog East got a memo on his Dimail telling him that he and his blessed company weren't doing their part to help the indigent in his district, and that God was displeased with this, so they'd more or less better shape up and do their share. Fast. Sort of an ecclesiastical word to the wise with a twist. Somebody threw them the sign of the cross and finished by drawing a line across the proverbial corporate neck."

Cardenas pushed out his lower lip as he shook his head. "Don't know Mondadoroko Tools."

"They're the precision masking division of Wurtemburg Kraftwerk GBN."

Which explained a great deal, Cardenas saw. The local precinct feds would be expected to deal with ordinary levels of extortion at the street level, but when small-time operators started trying to park their kismet on one of the big Multinats like Wurtemburg Kraftwerk, then Regional Enforcement would be expected to step in and bring some serious heavy shade to bear.

"Somebody's getting a little big for their britches," he commented.

Cooperman blew softly through his lips. "If you think you've got Jehovah on your side, why not try and respirate a little *dinero* out of the Multinats? Why limit yourself to shaking down restaurant owners and chip kickers and proteinoaties?"

"They're starting small," Cardenas mused. "Maybe they're not absolutely sure God's on their side. Hedging their bet with Heaven." He shifted in the chair, trying to focus on what Cooperman wasn't saying. "How'd the unlucky monger downslide?"

Looking uncomfortable, the captain leaned back in his chair and

threw up a casual hand. "He and his wife were solicited twice to contribute. By a cowled collar. You know; a padre?" He smirked. "Whoever's playing the game favors consistency."

"Flavors consistency. So why didn't they upchuck?"

"They considered complying, then went and discussed it with their regular neighborhood priest. He didn't know anything about this guy or the Order he claimed to represent; '*Nuestra Señora de la Machina*.' Figure that one. The priest advised them not to pay, and to call the local fed station. This they did. The mecho-padre came back twice. The third time he warned them that God was angry that they were prospering while others were starving. Bearing in mind the advice they'd been given, they told him to waft."

"What happened next?"

Cooperman's tone soured. "Two days later they were locking up around eleven when, according to the widow, a vision appeared in the middle of their store."

Cardenas ticked off possibilities. "Holomage projection. Static optical diffusion. Coherent-confluent VR. Something in their dinner. There are *mucho* plausible explanations."

"Sure there are," the captain agreed readily. "The widow says the vision was of a woman dressed in flowing robes, all a glowing white. The color and texture of heavy cream lit from within, she said. Too soft for sculpture. She says it wore a sad expression. It floated over to them and proceeded to rebuke them for their stinginess. Her husband declared himself unimpressed and insisted good and loud that he wasn't about to pay honest money to protect himself from magic tricks. Then he turned to pick up the phone to call us."

"The widow says that's when the image put a hand on her husband's head and he collapsed." Cardenas's eyebrows arched. Cooperman stared back at him unflinchingly. "Coroner's report says cardiac arrest. The guy died on the spot. His wife insisted then and continues to insist he was healthy as a horse. His medical records support her."

"What happened next?"

"The image backed off, steepled its hands as if in prayer, and told the widow that while she was sorry about her husband, the needs of the poor could no longer be entrusted to the sluggish whims of mere human agencies. Then it crossed itself and disappeared." He paused. "I'm no holofield specialist and I don't have time to keep up with everything that's new in the field, but I've only heard of one gizmode that might could do something like that."

"A tactile projection," Cardenas murmured. A very small shiver tickled the base of his spine, the ghost of a cold memory.

Cooperman nodded. "Strictly militware, and mostly experimental."

Except for one officially documented incident, which happened to occur in our district. Which happened to involve you."

"I'm not likely to forget it," Cardenas told him. "Have the relevant companies been queried?"

"Both GenDyne and Parabas insist they've barely begun to probe the secrets of the subox tunnel you discovered on that case, much less figure out how to bypass and disarm the guardian tactile systemics their late, lamented, and self-vacuumed specialists left sprinkled thoughtfully in their psychic wake."

"Sounds to me like somebody else has learned how to run up and virtualize an independent tactile. Military leak?"

The captain shook his head impatiently. "Been checked out. Thoroughly." This time he did smile. "First the militware boys insist they're not even working on anything like that, and then when you don't back off they assure you that even if they were, their security's so tight not even a masked molecule of information about what they're not working on could slip out."

Cardenas sighed. "So we're back to hypothesizing an independent designer. Like the pair who vacuumed themselves."

"Or something else," the captain muttered darkly. "Something new. Get out on the streets, Angel. Fave the pave. Go down into the *gordo grande* and parley the mongrel mongers. Find somebody who'll talk back. Kick some ids. I'm busy enough as it is with good old arson and rape and animal abuse. I don't need the Kraftwerks and Fordmatsus and GenDynes on my back. Nobody my age with my blood pressure deserves that."

Cardenas pushed back his chair and rose to leave. "I'll pray for you, Shawn."

The beleaguered captain didn't grin back.

II

Paily Huachuco had taken a filthy, gel-glazed storefront on Twenty-third Avenue and through hard work and pave smarts turned the rat-and-roach palace into the modest music nest flamboyantly neonated on the outside as Musik-Niche. That had been five years ago. Now there were four garish, glitz Musik-Niches, sited equally between Nogales del Norte and Sud. Now Paily was planning two more stores, negotiating for show space in the Lochiel and Cibuta malls. A flashman lawyer for a big synergainment syndicate had approached him with talk of franchising. The offer had been tempting, but the concomitant loss of control which would have accompanied it was not. Better to be an independent minimog than a high-salaried castrato.

Ten years down the road, maybe he'd think about going nat some more. Right now he was having too much fun.

Through the one-way polarized glass he could look down on the main floor of his flagship store where rapido repeaters and workers and sub-adults and ninlocos on their best behavior jostled with young execs and sararimen, maskers and assemblers, to peruse Musik-Niche's unrivaled stock. Motionmax sensorial holovits gyrated above their heads, enticing male and female customers alike with tridi sims of boobs and buns and bulges, and sometimes even music.

The execs and assemblers tended to scarf on preprogrammed discs, while the store's younger patrons were more eager to experiment. They floated through the humming establishment's vast, hourly-updated catalog of rhythms and melodies, voices and instruments, mixing their own according to the latest vogue. Everyone a composer, Huachuco mused. Everyone a singer and musician, arranger and performer. Like its competitors, Musik-Niche served up a boiling, stormy musical and visual stew from which patrons could at leisure and in comfort eluticate the bits and pieces of sound that most sweetly vitalized their senses.

Or if you preferred, one of the store's knowledgeable sampler specialists could help you assemble your own custom disc. A teaspoon of reggae, half a cup of tamba, guitar and juiced samisen to taste, bake in 3/4 time, ragout with drums and synth and crystallize when ready. Sprinkle with lyrics from Musik-Niche's immense ROM library and babaloo, baby, you too can be a star.

Or play it safe and trendy and buy premixed. That was even more profitable than the customized music in which Huachuco's stores specialized.

His door twinkled and Cina strutted in. She was pretty and efficient and had been with him since the opening of his second store. He'd made her a vice-president: in charge of interoffice communications and legs.

She brushed at her blonde surgical transplants. "That collar's here to see you again, Paily. You remember; the padre?"

"Cina, I told you to deal with him yourself." Paily fluttered fingers at his desk. "I don't have time to talk to chariters. I'm trying to pare down the margin on Hokusai's next delivery by another quarter percent and you'd think I was prospecting Mons Olympica without an airsuit. The stinking tight-assed Hivers don't want to cut an eighth on a single *cancione*, not even the ones on which they don't *comprende* the lyrics."

"He won't talk to me and he won't go away." She waited immovably.

Huachuco briefly considered having the obnoxious solicitor unceremoniously boosted pavewise, but if he was a bona fide man of God,

however much his approach and timing sucked, someone might witness. Or worse, take a recording of the incident. That kind of pee-ar he didn't need. Not when he was trying to go upscale with the new shops.

"*Mierda*. Send him in. I'll get rid of him."

Cina wafted. Her space in the doorway was filled a moment later by a short man in a brown business suit. His jacket's integral hood was pushed back off his head to reveal the white collar. He wore his black hair cut short and squared and had more *Indio* in him than the average Strip dweller.

"Why do you keep pestering my people?" Huachuco said challenging-ly, not giving the other a chance to speak first. "No, don't sit down. I don't have time for company and if I did, it wouldn't be you. No 'fense."

The collar considered his host calmly. His attitude was palpable and verged on the patronizing. Huachuco took an instant dislike to him.

"Everyone must make time for God's work, my son," the visitor de-claimed solemnly. He had a scratchy, accusatory tone on which words splintered like thin sheets of plastic underfoot. It did little to engender any empathy on the part of his impatient audience.

"I'm not your son, Padre, and I don't believe in God. I'm a business-man. I believe in contracts and the exchange rate."

"God is also in business: the business of saving souls. Those who avert their eyes from the pressing needs of the poor would do well to look to their own."

"Hey, I look after the poor. We have a big sale at least every other week. Tell you what: why don't you bring your parishioners in next Saturday for our monthly half-off? I'll let 'em in fifteen minutes ahead of the crowd. If you have any parishioners, that is."

"We of the Order do not preach in the obscenely monied halls of the great churches. We do our work quietly while embracing worthy individuals such as yourself, so that the contributions so generously made in our name may be guided straightforwardly to those most in need."

"Like yourselves, maybe? Go on, get out of here. I have work to do. Go vend your schtick on Centrale. If you show yourself here again, my security people will put you nearer heaven for at least three seconds. That's how long you'll be airborne before you kiss the pave." He bent to his work.

His expression stiff as his collar, the visitor turned to leave. "Our Lady does not take kindly to those who mock the Lord."

"That has a nice ring to it. I'm sure one of our pro mixers can set it to trip-trop for you. But if you're not going to buy anything, you'd better get out. You'll see the signs all over downstairs. No loitering."

Mouth tight as the hem on a half-shorts model, the brown-suit departed. Without any yelling or cursing, for which Huachuco was grateful.

Ill-considered obscenity was tiresome. The pave gave birth to some extravagant evangelicals, he knew. From the traditional End-of-the-Worlders to the more trendy Oceanics and the Silicon Surfers. He'd really have to take a moment to dictate a formal memo to Security, directing them be more selective about who they admitted. If you ran a business, you had to walk a fine line or the Equops would be all over you, claiming you'd failed to provide equal and unprejudiced access to left-handed lesbian Rastafarians with Down's Syndrome, or something similar.

Musik-Niche stores never closed, but the administrative staff worked normal shifts. All save Huachuco, who frequently stayed at his desk far into the early hours of the morning. That was how you built a business; by being the first one to open and the last to close. It was up to the boss to lead by example. Besides, Huachuco enjoyed his work. He liked drafting memos and scanning reorder sheets and negotiating for store space and licenses.

It was suddenly and unexpectedly much brighter in his office.

She was exquisitely, ethereally beautiful, and she hovered several centimeters off the floor as she gazed mournfully down at him. Her perfect face was unlined and unblemished, the nose sharp and Semitic, the large liquid eyes overflowing with poignant concern. Her immaculate white robe, pure as unblemished chalcedony, covered her from head to sandaled feet in the fashion of an earlier time. She wore no jewelry or other form of artificial adornment. She needed none.

Huachuco leaned back in his chair and considered the specter. "That's good. That's very good. I have to admit it: you're the best holomage I've ever seen. But then you'd have to be, to convince so many people. Or do you think I don't listen to the pave rave? Tell me; where's the projector? Hard to believe it's a portable; you're too dense. Talk about steady-state renewal: I can't see through you at all. They must tap into a building conduit nearby. Do they have to steal crunch as well as power? Sustaining your configuration, not to mention moving you around, must take one *molto* mass."

"You have no faith." The voice of the female figure was gentle and disapproving.

"You're right there." He raised his voice slightly. "Listen, you *vacantes*. When I opened my first store I had some stupid *pendejos* in every other night trying to hold me up for protection money, or just to see what they could steal. After I sent the first couple to the hospital and one to the morgue the word got out on the pave not to mess with Paily Huachuco. I guess you haven't been around this neighborhood long enough to get the word. I'm not some dumb convenio store owner you can frighten with words and holos." Leaning forward, he casually thumbed a switch on his desk. A brash hum filled the room.

"Know what I just did? First, that's a straightline to the local precinct station. My friendly 'hood federales will be on their way here in thirty seconds. Second, it snapped up a scramble cage around me. Anything electronic tries to slip through; holo, virus, bacterium, lethal charge; it gets reducioed like an electric chicken. You want to try gas, I got a mask in my desk I can put on faster than you can spit. I don't see your holo carrying no gun, so I won't even tell you how I handle that." He checked his chrono. "You better get moving. The feds will be here any minute."

The mage continued to regard him with sorrow. At that moment the door opened and the night manager poked his head in. Huachuco hastened to reassure his employee.

"Check this out, Benny. It wants prayers and money. Bet you can't guess which it wants *primero*."

Wide-eyed, the older man reflexively made the sign of the cross, much to the disgust of his boss. "You . . . sure it's just a projection, Paily?"

"What, are you kidding me, Benny? Don't tell me you go for this stuff too? The feds will be here soon. Be sure and let 'em in pronto. If this thing will hang around for another minute or two maybe they can track it to the broadcast generator. That'd put *terminado* to the local visits from our most persistently irritating collection agency."

The figure radiated calm and serenity as it drifted toward him.

"This should be interesting." Huachuco was relaxed, expectant. "I've got the scramble up. Will it come apart, make lots of pretty sparklies as it derezzes, or just disappear?"

"Paily . . ." the manager began uneasily.

"Take a soporif, Benny. Go back to work. Tell everybody what's sequencing so they won't freak when the feds show up at the front."

The night manager hesitated, unable to take his eyes off the beatific floating figure.

It impinged upon the scramble screen. And drifted through it.

There was no combustive flash of light, no coruscating disruption of the holomage's structure. The figure simply passed through the screen as though it didn't exist. Huachuco's gaze narrowed as he grabbed for a drawer in his desk. When his hand reappeared it held not a gun but a small rectangular plastic box. There were buttons on the end he gripped and LED's on top. He thrust it out in front of him, a portly Van Helsing preparing to ward off a persistent phantasm.

"You know what this is?" he growled, his voice still steady. "It's a field-box disruptor. You touch the end to a box, a board, a vorec receiver, a projection of any kind, and it sends a coherent static charge back through the box net to the control source. Turns it to mush. Compared to this, a standard scramble screen's nothing but a toy. Now get

away from me or I'll sludge your whole operation with one touch." He leaned to his left to peer past the incandescent female form. "Benny, see if the feds are here yet!"

The manager found himself unable to move.

A delicate feminine hand reached toward the owner, who started sliding backwards in his chair, the now wavering disruptor held out before him. Refulgent fingers closed upon the plastic. One made contact with Huachuco's flesh. He felt pressure, slightly warm though cooler than that which would have been produced by a normal human hand.

The disruptor began to melt, the plastic to run hot and liquid in his grip. He flung it aside when it started to burn his fingers.

"Benny!"

The night manager stood staring.

The melancholy expression on the flawless face never changed as the arms reached out to embrace Paily Huachuco. Mouth ajar, he gaped up at it. Then he twitched, just once, and slumped in his chair, his head lolling to one side, seeming to melt a little; not unlike the disruptor.

A trembling Benjamin Martinez fell to his knees, his hands clasped in front of him, his head bent as he began to pray. He prayed faster as the figure turned and drifted toward him. Outside in the store below one of the sales clerks was debating with the three federales who had just arrived. As bemused customers looked on she turned and pointed up toward the executive offices on the second level.

The seraphic figure reached Martinez and extended a hand.

"Please. Please, God," he murmured with an intensity he hadn't known he possessed. "I have a wife and two children."

The Virgo Gloriosa placed a glowing palm on his forehead. He felt an infinitely light pressure tilting his face up and back. The Madonna was smiling down at him. "Those who give to those who have devoted themselves to helping the needy have little to fear, in this world or the other. Least of all from me." The voice was music incarnate, pristine and refreshing as clear mountain waters. Then it vanished, a quick fade to nothingness.

Weapons drawn, the feds burst into the office. One tried and failed to coax Ben Martinez off his knees while the others rushed to examine the slumped form of Paily Huachuco. It was a brief examination, lasting only long enough to ascertain for certain that his heart had stopped.

III

The wiry figure in the brown suit slipped the cowl back off his head, the better to study the storefront. It was new, the location having been completely remodeled and popped only a couple of weeks ago. There

were no windows, but that was to be expected of a business that specialized in selling guns and other active means of self-defense. If such an establishment could survive in so dangerous a neighborhood it promised to be highly profitable. Profitable enough, surely, to donate a small percentage of its monthly gross to a worthy charity. He checked his collar to make sure it was straight as he strolled toward the entrance.

From what he could see the store's security setup was state-of-the-art impressive. Just inside the outer door armored vids scanned him visually while other sensors checked him for concealed weapons. Only when the system was satisfied was he admitted past the second, warhead-proofed inner door.

The place was much bigger than he'd expected, and full of customers. Most encouraging. The busy male and female staff looked competent and active. No doubt they were adept at demonstrating the same devices they sold. Drawn by her brassy bloneness, he chose the most attractive of the female personnel to approach, his mind toying with decidedly nonecclesiastical thoughts.

"Pardon me, miss, but where can I find the owner?"

"Is there a problem, Padre?" She was polite without being deferential. He kept his eyes on hers.

"No, no problem. I only wish to speak with him about the possibility of making a contribution to our Order and its program of public works."

She sneered knowingly. "Good luck with that. *Padron Cardenas* ain't real free with the *dinero*, either his own or the company's."

"I can only try to persuade him."

She shrugged, thumbed a pickup. "*Menudo minutos*, but it's up to you. I'll find out if he'll see you."

The visitor pretended to ignore the conversation that ensued, until the saleswoman turned back to him.

"He says because we're new in the 'hood he'll give you three minutes."

"I heard. Which way, please?"

She leaned slightly over the counter and gestured. "In the back, past the bioweapons freezer. I don't suppose I can interest you in a chili gun? We've still got a few left from our opening week special."

He smiled tolerantly. "I have no need of such violent devices. Our Lady watches over me."

"Glad to hear it. Good thing she doesn't watch over everybody, or we'd be out of business. Now if you'll excuse me, we're on commission here and I think I see a mark with money."

He raised an open palm by way of parting. "Bless you, my child." *I'd like to bless you for about an hour, on a hard floor*, he thought crossly, *but that wouldn't quite be keeping in character. Business primero.*

The black laminate carbide inner doorway was blocked by a huge

dark man wearing an expensive suit and an expansive glower. The angry metal knot of a repeating pistol made a prominent bulge on his hip. Collar and cowl notwithstanding, he gave the visitor a thorough once-over before passing him on. There was no need for a weapons pat-down, the sensors at the main entrance having already seen to that.

The inner office was dense with a surprising amount of tech. There was nothing readily recognizable as a desk; only a chair occupied by a small, muscular man who looked to be in his late forties or early fifties. A prominent, drooping mustache which gave him the appearance of a jaded basset hound underlined startling blue eyes and a small but jutting chin. He wore a neat charcoal-gray business suit with pink vertical stripes down the right side and a matching filigree-pattern shirt. When he gestured, the three huge rings on the middle fingers of his left hand shifted like platinum, not silver. The visitor was further heartened.

"Have a seat, Padre." The owner gestured at an empty chair. "What can I do for you?" His tone was soft and inoffensive, the kind of voice that made you feel instantly at ease. His attitude was friendly and accommodating. Clearly the salesbitch had him all wrong. Maybe this solicitation would go easy, the visitor mused as he sat.

"*Señor* Cardenas, I represent a local religious Order which has devoted itself to serving the poor of the Strip. To those in need we provide food, shelter, medicines, and sometimes a small amount of necessary funds to purchase those basics which we are not set up to provide. Since we are not a nationally recognized institution, we are forced to survive on the charity of local merchants. Yours is a new establishment in our parish, and you seem to be doing well."

"Thank you. We are," Cardenas informed him.

"Then perhaps you might see your way to contributing to our good works on a regular basis."

The owner looked thoughtful. "Let me tell you a story, Padre. When I was very young my mother died. I prayed to God to let her live. She did, for months, in great pain from a cancer they have not yet found on the genome. Only then did her suffering end. Ten months later my father was killed by a spazzed ninloco on parole from San Luis. Since then it has been my feeling that I have no use for your church or any other. So I will not contribute to your Order. You may leave now."

"Please, *Señor* Cardenas. I ask you to reconsider. Whatever you may think of the church, consider the poor."

Ice-blue eyes blazed unexpectedly in that otherwise placid face. "You have ten seconds to get out before my man Fennel renders you unable to collect from anybody, much less me."

The violence of the owner's retort caught the visitor off guard. Not that he was long troubled. He rose to depart.

"Our Lady is not pleased by those who speak so indifferently of those in need. I sympathize with your history. . . ."

"Don't," said Cardenas sharply. "Just get out, and stay out."

"God can persuade as well as heal," the visitor declared as he moved toward the special door. "Though you have not been long among us, it may be that you have heard of others in this part of the Strip who have had doubts of a similar nature resolved."

"I haven't been here long enough to hear much of anything except *multo gracias* from my suppliers, and I never listen to street gossip. *Hasta* your lego, Padre. Better luck elsewhere." Its automatic latch humming, the door shut firmly behind the visitor.

He nodded at the glowering guard outside and strode briskly toward the exit. Clearly this Cardenas was one of those who could not be recruited by mere supplication. But if he were to meet with a fatal condition, a venture like the weapons shop might easily fail. That would not be in the best interests of the Order. Dead men made poor contributors.

The gun-monger had struck the visitor as a very straightforward type. Skeptical to be sure, but once convinced, forever amenable. The visitor smiled. He and his Brothers would take time to pray over this.

Behind him, the guard and the saleswoman caucused with Cardenas.

"If he's a real priest, then I'm a pedigreed poodle pamperer," the woman avowed. "He was mouthing all the right words, but his eyes were on my chest half the time and it wasn't benediction he had in mind. You could see it in his face. Hell, you could practically smell it." Her mouth wrinkled at the remembrance. "There's a class of men who wear lust like cheap cologne."

"Thanks, Darcy," Cardenas told her. "He's obviously had practice at this. I thought his performance was good, but not perfect. His origins kept showing." He glanced to his left. "Any thoughts, Corporal Fennel?"

"Sergeant Delacroix's right," the big man declared. "It's clearly a scam from the start, sir. I'd bet my pension the poor pavers in this part of the Strip don't get a single credit from this guy's 'Order.' The recorders made a good snatch. If his reality's in the active files, we should have something on him by tomorrow morning. Might take a little longer if he's not."

Cardenas nodded knowingly. "Before he left he as much as threatened me with the same kind of fatal visitation that expiated that music-store owner last month."

"Anything we can pull him in on, sir?" the big man asked.

"No. He was too clever for that. Said nothing indictable. Everything was implied. But the threat was real enough. I'm never wrong about such things." The officer didn't dispute this. Everyone knew Cardenas's reputation.

The sergeant looked grim. "All the applicable tech's in place, Inspector. If anything weird manifests, we'll be ready for it."

"We'd better be," said Cardenas. "The hook's been set. I don't want any casualties on this operation."

"Orthodox, sir. Don't worry." She turned and headed for her duty station. The chevroned steroid went with her, hesitating at the door only after he was sure that his fellow officer was out of hearing range.

"Inspector?"

Cardenas looked up at the corporal. "What is it, Lukas?"

"Well sir, I don't quite know how to put this. It's just that . . . my family's Catholic, sir, and I was wondering if maybe . . ." He broke off, looking like a man who'd lost a contact lens instead of the right words.

"Wondering what, Lukas?"

The big man blinked uneasily. "This couldn't really be a manifestation of the true Madonna, could it, sir? I mean, I've read the reports and studied the descriptions testified to by those who've seen it, especially the night manager at the *musik* store. . . ."

"Lukas, do you really think the Madonna would stoop to soliciting monetary donations on behalf of false priests?"

"No sir, of course not, sir, but the *musik* exec had a scramble screen and a disruptor, and they didn't save him. They didn't work at all. Any kind of holomage, even a tactile, should *derez* when hit by either of those kinds of defenses, much less both of 'em."

"Officer Fennel, are you sure you're going to be able to carry out your duties on this assignment?"

The corporal stiffened. "Yes, sir."

"Then go back to your position, and stop thinking so much."

The big man nodded and left, but it was clear he was still troubled. He might fool his colleagues into believing everything was okay with him, but not Cardenas. Not a trained intuit.

It was pretty bad, Cardenas thought, when your own people started giving credence to the utterly outrageous. That was the reality of modern supratech for you. Virtually convincing. The idea that a Madonna was at work in the extortion business was as patently absurd as the notion of one appearing in an Ajo farmer's pecan orchard, an actual incident that had been related on the *vit* not all that many weeks ago.

This part of the world had been reporting such manifestations for centuries. Madonnas were espied in gnarled tree limbs or in shadows cast on walls, or in the sideways reflections of improperly installed bathroom mirrors. There were Madonna sightings several times a year by (usually) rural folk for whom the scientific method and common techniques of simple analysis remained as unfathomable as the inner workings of a modern vehicle. When resigned specialists arrived on each scene to

propitiate the inevitable outpouring of misplaced theological fervor, a natural explanation for each event was always quickly forthcoming.

This one was more sophisticated than most and would take a little more effort to explain. The only caveat awaiting its explicators was that it was also a lot more deadly than a perceived silhouette on a wall or a benignly misshapen pumpkin.

IV

They didn't have a chance to see what the active files held on their insistent padre, because the anticipated apparition manifested itself before the requested report could be processed. For a sanctimonious visitation, Cardenas thought, it was remarkably responsive to the complaints of its chosen supplicants.

He recovered quickly from the initial surprise when it coalesced in his sealed and supposedly mage-screened office. That it could bypass conventional security measures they knew from the way it had actively penetrated the defenses maintained by the recently deceased founder of the budding Musik-Niche music boutique chain. As to its appearance, it was exactly as described by surviving eyewitnesses such as the music store's night manager and the shop owner's widow.

It was quite a show, he decided. Traditional yet stirring, more than substantial enough to convince the gullible. And if the reports were to be believed, capable of unique feats of physical manipulation. That was what really intrigued him. In his career he'd had a couple of unprecedented encounters with tactile projections: more-than-virtual electronic matrixes capable of interfacing with solid objects, including people. He had to admit that the lifesize, softly glowing woman in her simulated white robes was as impressive as anything he'd previously experienced.

"You're very well made." His finger nudged the switch mounted beneath the arm of the chair. No one knew how the specter had managed to kill several perfectly healthy men, but no matter how the encounter transpired it would not add Cardenas to its list. A touch of the switch would instantly drop the chair in which he reposed to the basement below.

"You mock me." The voice was perfectly attuned to the figure, but voices were easy to synthesize and mate to a holomage. Active corporeal tactility was an infinitely more ambitious accomplishment.

"Not at all. It was a compliment."

"You do not believe in me," the hovering Virgo declared.

"I'm willing to be convinced." This was true, as far as it went.

The phantasm turned toward the blank wall which faced the main part of the store. "You deal in violence."

"Does that trouble you?" Cardenas's finger lightly massaged the safety switch.

"Of course it does."

"But you'd still accept money from me that's derived from the sale of weapons."

From beneath brows of graven ivory limpid eyes fraught with imponderables deliberated. "Not I. I take nor ask nothing for myself. It is to benefit those who serve me. For the sake of the poor and needy, yes, I would not turn away such a tithing. Until the time comes for violence to be banished from this world, I will take from the misguided to help the needy. There has after all been violence even in Heaven, when Michael and the Host cast out Satan and his followers."

"The citizens who buy from me tend to find themselves entangled in confrontations of lesser import. You have to understand, of course, that I would need some kind of proof of your divine character before I'd simply turn over the fruits of my labor to those who claim to serve in your name."

The enraptured incarnation did not hesitate. "Come then, and confirmation will be thine. He who hesitates is lost."

I don't remember that quotation as being from the Bible, he thought, but said nothing aloud.

A luminous white hand reached for him and he flinched. While no threat had been voiced or implied, there was no way he could intuit a projection. Reason suggested he would not be harmed; at least, not this time. He'd expressed a willingness to be converted, and a live believer constituted a much more profitable mark than a dead skeptic.

Reaching a decision he rose from the chair, eschewing the safety it represented, and extended his own hand. The supple snowy fingers enveloped his own. He felt a gentle pressure urging him toward the doorway. The finger pressure was startlingly real, appropriately ethereal, and not the product of some clever subliminal projection. For the first time he felt his skeptical convictions wavering ever so slightly.

But then, a highly advanced tactile program should be capable of that much. So gentle was the grip he felt certain he could pull away at any time. He did not try to do so, for fear the action might provoke a less amiable portion of the program. He allowed himself to be led.

Fennel started when the phantasm emerged with the Inspector in tow, but at a sign from Cardenas he kept his distance and his hands away from his weapons. As man and manifestation stepped out onto the shop floor, murmurs of confusion and then recognition arose from previously preoccupied customers. There was a concerted, agitated rush for the exit which the salespeople, federales all, made no effort to impede.

One officer feigned panic and joined the customers in breaking for the egress. Cardenas complimented him mentally for his quick thinking. Depending on the sophistication of the Madonna's observation and analysis programming, internal alarms might have been triggered if all the customers had fled while every member of the store's staff stood pat. The officer's precipitous flight should reassure the program, along with whoever was monitoring it, that nothing was amiss and that the store was nothing more than what it appeared to be.

The specter drifted over to a glass case to peruse the weaponry within. "So much effort devoted to manufacturing the means of death. Yet it is not at this moment in time within my purview to ban or interfere. Only to succor the poor." Releasing Cardenas from her feathery grasp, the figure reached out. The plainclothes unsaleswoman behind the case decided it was time to put some distance between herself and those glowing fingers. She retreated until her back was pressed against the wall.

Radiant fingertips touched the glass and melted a hole through the thick transparency. They dipped lower to nudge the arm-and-activate switch on the shaft of a Rugersturm .10 caliber repeating pistol lying on the top shelf. There were gasps and a couple of muted curses as everyone, Cardenas included, dove for cover.

The weapon wailed. Four score and ten tiny shells splintered the case and tore into the wall, nearby display cases, and the floor as the ignited but undirected weapon flushed the contents of its integrated oval clip in a thirty-second staccato orgasm of destruction.

As the explosive echoes faded Cardenas looked up and slowly slid his hands off the back of his head. Everyone stayed prone, waiting for whatever might come next. The beatific shade pivoted slowly to fix him with a kind but reproving eye.

"So much violence." It drifted toward another display near the back. Two officers garbed as sales clerks scrambled in opposite directions as the figure melted another hole in a second case and triggered a demonstration sinus grenade. As irritating gas spread through the salesroom, personnel scattered, clutching at their faces and sneezing uncontrollably while mucus poured from their nostrils. Cardenas rose to join them in the rush for the street, but a lambent feminine figure interposed itself between him and the exit.

"Do not be alarmed. You will not be affected. I have spread my circle around you." And indeed, the initial tickle of the gas was not repeated. All around him his tactical team was staggering for the doorway while he stood alone and unaffected in their midst.

A very impressive demonstration, he decided, but not unarguably divine in origin.

"Let this remind you that I can bless as well as rebuke," the exquisite specter informed him. They waited for the fast-acting gas to dissipate. Only when it was no longer a threat to the inspector did the figure begin to fade.

"Help those in need and do not torment yourself with so many questions. You will be blessed." And then it was gone.

Just like that.

Cardenas stumbled through the lingering miasma, sneezing only a few times, and stood in the entranceway to hail his staff as they wheezed and gasped in the street outside. Curious pedestrians had slowed to eye the mass sinus attack but resumed their pace as one by one the afflicted recovered and reentered their place of business. One by one the door readmitted them as they flashed their individual ident cards.

Cardenas arraigned them in the middle of the floor. Speaking through a damp handkerchief, a watery-eyed officer announced from his assigned station near the entrance, "Surveillance is green."

"I'm not sure that has any relevance to what we're confronted with here," the inspector told his snuffling, red-eyed associates, "but we'll assume for the moment that we can talk privately. You all saw it?" There were nods and a few lingering sneezes. Tissues and handkerchiefs were much in evidence. "Any opinions?"

"Best holomage I ever saw," the pert sergeant commented with hesitation. Her opinion was seconded by several of her suffering colleagues.

One officer was examining the hole the apparition had punched in the first display case. "Melted right through, sir."

"But it didn't pick up the gun," someone else pointed out. "Or the grenade. It just activated them."

"Its touch is very light," Cardenas informed them. "I don't think it was dense enough to raise either one. It can generate enough heat to melt tempered glass, but not enough projected mass to exert much lift."

"Ultrasound," someone speculated, "could exert pressure *and* heat."

Cardenas nodded, his mustache bobbing. "That's a possible. I'll buy that explanation for the holes in the cabinets, but the touch on my arm was too steady for ultrasound. There was no accompanying heat or vibration, either. There's something else at work here. Something new, or at least a development that's not on the market yet."

"It propagated responsive verbalizations," someone else remarked. "They didn't arise from a separate source."

"No, that's something else to note. And there's more. We talked in the office before it led me out. It alluded to the battle in heaven between the archangels and Satan's fallen ones. My first name is Angel, but it didn't even mention that. I'd think a Madonna would have commented on the irony. For that matter, you'd think a spirit laying claim to

heavenly inspiration would have known that this store is nothing more than a blind and that we're all feds instead of eager gun-mongers."

"The failure to comment isn't conclusive, sir," Delacroix noted.

"No, but it's interesting. Just like its tendency to speak in generalities. A deity wouldn't do that. An advanced generic response program would."

"Your average street monger or exec wouldn't pick up on that," the sergeant pointed out. "They'd be too mesmerized by the holo. Is it a real tactile, sir? I've heard of them, but I've never seen one."

"Few non-milit types have," Cardenas told her. "I happen to be one of the few. They're not magic. Just incredible reciprocating programs that are sustained by an unbelievable amount of crunch." His gaze flicked to another officer. "Stenopolous, have the molly moles run another check on all Strip utilities. See if they can spark a hint that somebody's vaping a large aggregate of charity crunch. If whoever we're after's good enough the lift'll go untracked, but maybe we'll get lucky. Even the best get sloppy sooner or later."

"Yes, sir," the officer replied enthusiastically.

"The rest of you get this place cleaned up. I want to be open for business again by tomorrow morning." Groans greeted this order. It meant digging slugs out of the walls, or at least spackling over the holes and repainting. It meant fixing the damaged display cases and removing all signs of trouble. The true glamor of federales work, he mused.

He sensed a presence at his shoulder and turned to see Corporal Fennel peering solemnly down at him. "Sir?" The big man appeared hesitant.

"What is it, Lukas?"

"Well sir, I wouldn't want it to affect my record, but . . . you remember what I said earlier? About coming from a really religious family and all that?" He straightened self-consciously. "Sir, I'd respectfully like to request a transfer off this assignment."

Cardenas's gaze narrowed. "You're serious, aren't you, Fennel?" The hulking officer nodded. "All right. I'll enter the necessary order. You can report back into your regular precinct tomorrow morning instead of coming here. Now that we know what we're up against, I don't think I need to replace you."

"Thank you, sir. It's just that I . . ."

The inspector put up a hand. "You don't have to explain yourself, Fennel. I understand."

The other's relief was palpable. "Thanks, sir." He lingered, as if feeling the need to further justify his actions. "She *was* vivid, wasn't she?"

"*Es muy verdad*, man. But I don't think she was immortal."

"Can't a reciprocating program go on and on, sir? Isn't that a kind of immortality?"

Cardenas frowned. "I thought I knew why you were asking to be relieved from this assignment, Fennel. Am I wrong?"

"Not really, sir. I was just wondering out loud. *Gracias* again." He turned and moved off to help with the cleanup.

A moment later Delacroix was at his side, nodding in the direction of the retreating officer. "What was that all about, sir?"

"Caution. Piety. Uncertainty. Sometimes they all go together, Sergeant." He turned briskly. "We'll open on time tomorrow."

"Yes, sir. If you don't mind my asking, what's our next step, sir?"

"We're going to make a contribution to the padre's Order, of course. Just like *she* suggested we do."

She blinked. "Sir?"

"And in return we're going to ask a favor of the blessed virgin's humble servant. We've now been convinced of her existence and personal involvement in this Order's cause, you see. So convinced we want to extend our contribution beyond that of mere money, to one of a more personal nature."

"Oh. I see, sir. At least, I think I do."

"All will become clear, Sergeant." He smiled.

It had better, he thought, or he was liable to start losing others in addition to the honest and straightforward Fennel. Or worse than that.

He had not forgotten that this tactile or whatever it was could kill while smiling.

V

When the collar returned the next day, he was gratified to observe the expressions of uncertainty and respect on the faces of the salesfolk. Though he was not privy to the details, it was clear that the manifestation had been a most efficacious one. Certainly he was treated with more courtesy as he was ushered into the owner's inner office this time, though the ushering was done by someone other than the giant of the day before. That was fine with him. The big man had struck him as an armed weapon able to go off at any moment.

"*Buenos* not so tardy, Padre," said Cardenas. "You have a seat and I'll have a moment." He vanished through a camouflaged back door as the visitor made himself comfortable.

The owner reappeared a moment later in the shadow of unexpected company. The visitor was delighted to see the attractive saleswoman among them, but the look on her face and those of her two companions were less than inviting. There was no apprehension there, either. One of them activated a previously concealed wall device while anoth-

er positioned himself prominently in front of the closed door. Meanwhile the woman produced a sleek portable recorder of a type he was afraid he recognized and began scanning him while simultaneously checking the readbacks. He shifted his fracturing bravado to his host.

"What is this, my son? I don't understand."

"Your Madonna paid us a visit last night."

The collar smiled, on firmer ground again. "Ah. I can tell by your tone that she remonstrated with you. No one was injured, I hope?"

"No, though someone could have been. Your Madonna's a little trigger-happy."

"What mere mortal can divine her methods? She works her will as she sees fit, adapting her approach to the need and circumstance of the moment. It matters not. In the end all are become aware of her omnipotence."

"Truly," Cardenas agreed. "It was a very convincing demonstration."

"Ah. Then you will be contributing to our Order so that we may continue tending to our flock?"

"In a way."

The visitor was immediately on guard. "What do you mean, in a way?"

"Since you gave us a blessing, it's only fair that we bless you in return."

"That seems reasonable enough," the collar conceded guardedly.
"What sort of blessing had you in mind?"

"The blessings of information, Padre Morales."

The visitor tensed. "My name is Brother Gutierrez."

Cardenas nodded past him, at the saleswoman. In a much more formal voice than she'd employed previously, she read from her portable.

"Eduardo Morales. Also aliased as Pablo Mancuso, Guiseppe Mendez, Arlen Roberto Rodriguez, Julio Ixtapa . . . there are a good dozen others. Born borough of Neuvo Montoya, greater Guadalajara thirty-one or two years ago to Velaz Morales out of Sisipe Morales, maiden name Santiago. Dropped out or kicked out of numerous schools; the names are unimportant.

"Arrested three times for burglary, one conviction; three times for assault, no convictions, twice for attempted rape, one conviction, twice for grand theft, vehicular, one conviction. . . ." She glanced up from the portable. "You have a lot to atone for, Brother Morales."

"You've got me confused with somebody else."

"*Verdad?*" She walked over and flashed the portable's vit pick in his face. He blinked and looked away, but not in time. She studied the readout.

"Retinal patterns match, both eyes. Still think we're making a mistake? Want me to pull some blood and do a DNA match? The state'll bill you for it."

He gazed moodily at the floor, his demeanor having turned distinctly unclerical. "So what of it? Anybody can reform."

"Drastically, it would seem," Cardenas murmured.

Morales looked up, suddenly grinning. "Okay, I admit to who I am. What are you going to charge me with? Soliciting donations under a false name? Go ahead, charge me."

Delacroix checked her portable again. "We were thinking more along the lines of extraditing you to Jalisco. Or did I neglect to mention that you're wanted there on a three-year-old outstanding murder warrant?"

The visitor's pupils dilated slightly. It would have gone unnoticed to anyone but an intuit. "That whole *negocio* was a frame! Besides, the drool was a snaffler. He deserved to die."

"Could be," agreed Cardenas, "but that's really up to the Jalisco court to decide. You being a multiple loser, they might be inclined to ignore any mitigating circumstances on your behalf. A nice letter of recommendation on my part could do you a world of good, *compadre*."

Wearing the aspect of a pedigreed terrier trapped in a one-way culvert by a livid pit bull, the unhappy visitor eyed the inspector warily. "You'd do that for me?"

"You help us out here, you'd be surprised what a real friendly sort of homber I can be."

There was silence. The collar looked up cautiously. "Nothin' I can say will do you any good, man. She's real, the Madonna."

"Come on, Morales. We know better than that, and you know we know better than that."

"No, man, I mean it!" He peered around anxiously. "I don't know that she's *the* Madonna, but she's real enough. I seen her plenty. Brother Perote, he's the one who pro . . . propitiates her. He knows."

Cardenas exchanged a glance with his associates. "This Brother Perote, he's your leader?"

"He's the Father Superior. He's the one who decides how the offerings are distributed. Who gets what. Some of it does go to the poor," he added defiantly.

"Maintaining their cover," commented one of the officers diffidently.

Cardenas nodded. "How about you tell me the routine, Brother? These distributions: do they take place on prearranged days? Everyone meet the same place at the same time?"

Morales shook his head. "Same place, yeah, but there's different people at the prayer sessions at different times. Depends who's around, and who's on duty."

"How many Brothers in your 'Order'?"

The prisoner shrugged. "I don't know for sure. Perote don't talk a lot about stuff like that."

"I'll bet," muttered one of the other officers knowingly.

"Sometimes I seen twenty at prayer, sometimes more. Depends who's workin' what streets."

"Good," said Cardenas. "Then a new initiate's not likely to attract undue attention."

Morales gaped at him. "You crazy, fedoco. They'll lase you right out of your shoes."

"Not if I'm properly coached in procedure by an experienced Brother, my friend. I have an excellent memory. You run the routine by me once and I'll remember it. Verbatim."

Morales shook his head. "Don't want no federale's death on my vita."

"I'm not going to die. I'll be well tracked at all times, and armed. In any event, it's not your worry. You make your deal, nothing that happens subsequently affects you. Do we have an arrangement?"

Morales looked around at the other feds. "You're all witnesses. I'm not responsible for anything that happens to this crazy." He turned back to eye Cardenas speculatively. "It's not Perote you have to worry about. She'll kill you herself. The Madonna. She doesn't like unbelievers."

"I've already met her," Cardenas replied quietly. "I think we can reason together."

"Man, don't you understand? You don't reason with the Holy Mother. You just do as she says."

Cardenas nodded paternally, as one would to a stubborn child. "Just tell me the routine."

VI

The patterners in Supply cloak-scanned Morales's outfit and cut Cardenas a suit to match overnight, complete to cowl and trim. They had to work fast, lest the good and now highly talkative Brother be missed by his brethren. Morales remained convinced Cardenas would be noticed, despite the color-changing lenses which turned his unusual blue eyes an unremarkable brown. It was critical that the inspector be prepared to provide the right answers to any casual inquiries. If one of the deacons or worse, Perote himself, happened to challenge him, then the officers who would be tracking his situation would need to react fast.

The directions Morales provided took Cardenas deep into one of the poorer commercial sections of Nogales Sud. The district was a tangled mix of older structures, some dated enough to qualify as pre-Maquiladora, where cheapjack assembly plants loomed over prefab apartment buildings and a few forlorn one- and two-story homes cobbled together out of presswood and formastone. Street lighting was in short supply,

ninloco ganglets prowled the corners around heavily armed and shielded liquor and food dispensaries, while ordinary citizens drained after ten-hour days in the plants pretty much went straight home and stayed there. Even the local whores looked lethargic.

As he hunted for the given address Cardenas recycled the information Morales had supplied about the nature and activities of the Order. *Miercoles* was a regular meeting day, during which reports were presented on successful collections, promises to pay that had been secured, reluctant merchants and individuals who required further cajoling, and so on. Occasionally, large sums of money were passed out to the faithful. Cardenas was now Brother Cardenas. So long as no formal roll calls were run, and Morales had assured him they were infrequent, he was convinced he could successfully infiltrate the gathering.

In the event of the unexpected, or the need to wrap up activities in a hurry, a pair of federal VTOL's cruised overhead, each equipped to monitor the electronics that had been pressed discreetly into his brown suit. He holstered a duplicate of the street gun Morales had favored, knowing he would have to surrender it at the door. But for one in his position to arrive unarmed would be like showing up naked at a convention of nuns.

The churchfront was new, a quickie prefab job obviously slicked, sliced, and stamped to order. It had been superimposed on the loading dock of an old warehouse located at the far end of a cul-de-sac, giving the consecrated facade the look of a cheap vit set. The deceptive solidity of the burnished copper-hued spires and arched doorway doubtless imparted an aura of reassurance to passersby, though the volume of both pedestrian and vehicular traffic in this part of the city at night was slight. The nearest induction tube station was half a kilometer away. The church was not an easy place to reach, which was doubtless how its founding Brothers preferred things.

He lingered in the shadows until a pair of collars alighted from an autocab, then increased his stride to catch up to them. Before they could ask questions he initiated conversation, sprinkling it liberally with terms and code words supplied by the newly loquacious Morales. By the time they reached the feign-grained double doorway, with its pseudo brass brads and sham wormholes, he had intuited enough about his companions to induce the three of them to chatter away like confidants, energetically exchanging views on tough sells and eager contributors.

Replicates of the security nodes the techs had found in Morales's suit got Cardenas past the prominent scanner in the outer hallway and into the inner sanctum. Other Brothers were assembling there, in an atmosphere of expectation and unholy conversation. Women, liquor, and the

psychowiles of the rudest recreational pharmaceuticals were mentioned far more often than God, good deeds, and service to mankind.

When he finally arrived to call the assembly to order anon a blast from a semiserious synthesized organ, Brother Perote turned out to be something other than what Cardenas had expected. But then, they usually did. He was even shorter than the inspector, stocky and unathletic in appearance, probably in his early thirties. Back and forth across the small raised stage he strutted, like a professional street urchin, his arms and hands in constant motion. He looked like an overwound, overstressed antique child's toy, and sounded like one, too.

Thanks to the generosity of local believers, there would be a special distribution to the faithful tomorrow, he declared. This announcement provoked the expected unclerical hoots of appreciation among the assembled, as well as a smattering of enthusiastic applause. Plans for the forthcoming month's work were discussed, with accompanying exhortations to increase collections and solicitations threefold. Following the economic report, several new members were inducted into the Order in a no-nonsense, businesslike manner. Perote simply introduced the newcomers, who were greeted with a few good-natured catcalls and obscenities.

The Order appeared to be not only healthy but growing, Cardenas noted, as was to be expected with any successful, profitable racket. Though Perote made an effort to act and sound like one of the boys, he was obviously a good deal smarter than any of the acolytes lingering in the inspector's vicinity. Cardenas was eager to run a check on him, but pulling out a scanner in the midst of the assembled Brothers and aiming it at their leader would be more than likely to bring his investigation to a violent and premature end.

There was some concluding conversation, including an exchange of questions and answers, before the assembly was finally dismissed. Brothers began to file out the door, to waiting cabs or private vehicles. Not the type to hang around and make small talk, Perote had vanished as soon as he had nothing more to say. A check of his watch surprised Cardenas with the lateness of the hour. The meeting had gone on longer than he'd anticipated.

He drifted toward the left-hand wall, where empty shipping containers and old crates remained from the building's previous days as a storage facility, and found one unsealed. Slipping inside, he picked his way back into the depths, stepping lightly among static cloud-shapes of plastic and fiberboard until he found a pack bubble that would support him. Then he sat down to wait.

When his watch showed three A.M. he removed the night goggles from his interior breast pocket and slipped them on. Very little light fil-

tered into the church, but the amplifying goggles cast his naturally dim surroundings in an eerie twilight. Making no noise, he emerged from the jumbled cluster of shipping containers into the assembly area and headed purposefully toward the stage, confident in the knowledge that at least one shepherding VTOL was hovering nearby, circling this part of the city while tracking his movements.

The platform was deserted, the electronics crudely secured to the simple podium powered down and dark. The back of the stage consisted of a false wall erected out of dark quasi-stone paneling. Walking around the far end presented him with a dim vista of empty floor and a few scattered crates, a small field kitchen which served to feed the faithful on those occasions when food was required, a quartet of portable sanitary booths from which emerged faint disagreeable smells, and in the distance, a back door. Nothing else.

From the belt concealed beneath his jacket he removed a small tube, adjusted the slide controls on one side, and flicked the button at its base. A pair of bright green LED's sprang to life together with a small illuminated readout. Covering the LED's with his gripping hand, he shielded the readout with the other as he followed its directions.

The device led him to the third in line of the four one-piece, self-contained portable johns. There was a lock on the handle and an "Out of Order" sign pasted to the door. He frowned at his handheld, double-checked the readouts, then set to work. Another tool drawn from his belt made short toil of the simple lock. He lifted the handle and peered inside.

In place of the expected holed throne, a metal ladder descended into darkness.

Treading carefully, he started down. The rungs terminated in a narrow hallway, which soon opened into a large room filled with enough expensive tech of sufficient sophistication to impress even a Multinat designer. Several sealed cabinets emitted steady, placid hums, indicating that their contents were powered up, or at least in dormant mode. There were a couple of chairs, some marked-up hardcopy maps on one wall, a pile of pornographic printouts heaped indifferently in one corner, a sink and chiller, and a single rumpled bunk.

He started with the obviously costly, state-of-the-art tech, beginning with the satellite downlink. It was active and warm. Though the readout was coded, he had no doubt that it could be decrypted quickly enough, identifying both the satellite and transponder in use.

He was moving to the next pile of components when he felt a presence, and sensed the light. It nearly blinded him and he clutched at the night goggles, feeling frantically for the strap.

When he finally wrenched it off and his vision cleared, he saw that

she was floating between him and the ladder, her ethereal expression full of regret.

"You shouldn't be here," the image asserted. "You defile the holy places."

"On the contrary," he replied as evenly as he could, "I have tremendous respect for whoever set this up." He tried to see past the conflagrant figure. "Who's controlling you? What alarm did I finally trip?"

"No alarm. And no one controls me. I sensed your presence, and I came to you. You do not belong here. You are not one of the faithful. You come to work mischief."

"Not me. I seek only enlightenment."

The Madonna appeared to hesitate. "You seek it obliquely."

"That's just my nature." He tried to anticipate what the deadly phantasm might do next as his fingers crept toward an interior coat pocket. Within lay the broadcast unit that would instantly summon the VTOL's and help from outside.

"Sadly, your inner self remains closed to me," came the cryptic whisper as he felt something prick the back of his neck. Whirling, he saw a cowled shape step quickly back from him. He fumbled for the unit inside his jacket, but all of a sudden his fingers wouldn't respond. Nerves and muscles had gone swiftly and completely numb.

He thought someone stepped forward to catch him before he hit the floor, but so rapidly was consciousness fading that he wasn't sure. Behind him he heard the specter say, "Be gentle with him. He is no less than a sheep strayed from the flock."

"Yeah, sure," came the terse and entirely compassionless male response.

VII

He awoke on a cot not dissimilar to the one he'd seen in the underground chamber. Muted daylight seeped in through a high, unreach-able, and much too small window punched through the stone wall across from him. It was real stone, he soon ascertained, not fake.

Furnishings consisted of the cot on which he lay and a simple polystyrene four-legged table on which rested a pitcher full of water, and a glass. Muscles aching and stiff, he climbed off the threadbare mattress and stretched until he thought he could walk without pulling anything. Moving carefully to the table he poured himself a drink and sipped slowly. His throat was incredibly dry. An aftereffect of whatever they'd doped him with? He found he was shivering slightly. This was a consequence not of any drugs but of his condition, which at present was

even more threadbare than the inadequate mattress. They had taken every last stitch of his clothing.

Someone got behind you while you were gawking at the phantasm, he chided himself angrily. You missed an odor, a footstep, the movement of a cautious body through air. In poco, your reactions sucked. Some intuit! Maybe you ought to tender your time to Cooperman, get out while you're still alive. There's all that pension saved up. Quit while you can.

A notion worth pursuing, except that he had a feeling his captors weren't about to give him the opportunity to do so.

Not much time passed before words reverbered over a concealed speaker. "Good to see that you're up and about, Inspector." A single, meretricious salutation, and the voice went silent.

Moments later the heavy wooden door clunked as it was dragged aside. A tranquil Brother Perote entered. Fighting for alertness, Cardenas intuited the presence of two very large men flanking the entrance and placed his instinctive first reaction on hold.

Perote leaned back into a corner of the cell and crossed his arms over his chest as he studied his prisoner. His comparative nakedness didn't bother Cardenas, but the situation did. So did his captor's unaffected nonchalance. It conveyed the air of someone who felt he was completely in control.

"Where are my clothes?" He tried to make it sound authoritative even as he was aware of how feeble it must seem.

"You're not going anywhere, so you don't need them. I had them carefully scanned. That turned up what I expected to find. The usual alert and alarm devices, antenna pickups woven into the fabric of the suit; that sort of thing. We put the whole business on a mannequin and slipped it onto a high-speed cargo induction on the evening rush-hour shunt to San Antonio. I figure it'll get about halfway there before your babysitters get nervous enough to break silence and check in on you in person."

Cardenas kept his eyes on his captor as he sat back down on the bunk. His mind was still unfocused, his equilibrium diluted. "Where am I?"

"Not in Kansas." Perote chuckled. "Not in Nogales, either. How'd you find the church?"

"An informant," Cardenas told him. "There'll be others."

"Maybe. Maybe not. We can move quickly if we have to. Who was it?"

Cardenas smiled thinly in return.

Perote clearly had expected that response. "No matter. You'll tell us in due time. An hour's nothing but *una hora*." He paused to consider something. "You'll tell us everything."

"I'm trained to resist all varieties of persuasion, physical as well as chemical. As an intuit, I can usually sense what's coming and prepare for it."

Perote's eyebrows rose. "Never met an intuit before. Heard of you guys, but never expected to meet one. It'll be interesting to see if you're right." His eyes glittered. "We can capilline some real graphic juice."

"Won't make me tell you what the noh-man knows."

Perote shrugged. "Then you'll die."

"You'd *muerte* me anyway."

"True enough. I won't lie to you, federale. Here, I don't need to."

"The satellite downlink in Nogales shackles you to a base station somewhere. Here?"

Perote nodded approvingly. "You're quick, all right. Quick and dangerous. I'll be glad to see you dead. Nothing personal. I can see that you're the kind of federale who could make real trouble."

Cardenas was not to be diverted. "You generate the program at your base station. Here." Perote did not comment, but neither did he deny the surmise. "You use the downlink to relay it to Nogales. Then what? Hiflow short-form antennae fixed in trucks parked outside each business you extort?"

"Man, you *are* good." Perote admired his prisoner's intuition.

"What made you decide to use a Madonna? I've seen tactiles before and this is easily the best of the lot. There's more control over form and movement, and you're able to sustain density. Where do you get the requisite crunch and power?"

"For a condemned man, you're ripe with questions."

"I've no doubt you'll get the chance to ask yours as soon as you're ready."

Perote's smile returned. "You know, I like you, federale. But not enough to let you live. You're an unbeliever."

"And you're about as religious as a lobotomized lemur."

"Do you intuit that about me?" Perote was enjoying this, Cardenas noted, like a sadistic lepidopterist lazing away a contented summer afternoon with his pins and killing jar.

He nodded slowly, his mustache bobbing. "Yes, I do. I also intuit that you're clever enough to set up and run an operation like this, but not smart enough to devise it."

"No shame in that. One of the traits I attribute my success to is never letting ego get in the way of business." Perote stood away from the wall. He was a lot calmer and more controlled than he'd been on the warehouse-church dais, Cardenas reflected. He wondered what the man's drug of choice was.

"I used to supply shady components, undermarket chips, declassified nodules, AG-substandard protein storage cylinders and a lot more to a cranky nanker called himself Silvestre Chuautopec. Ever hear of him?" Cardenas shook his head. "He was a little old, little odd man who lived outside of . . . here." The grin widened.

"I was fascinated by the work he was doing and used to hang around watching him after finishing my deliveries. Eventually he took note of my interest and asked if I'd be interested in helping out. There were times when he needed another pair of hands attached to an unquestioning brain."

"I suspect you fit the bill admirably. Why do I think that was a mistake on his part?"

Perote ignored the dig as beneath his notice. "Old man Chuautopec slaved twenty-three years for Tamilpasoft Ltd., sculpting mollypaths and box access technology. Then he quit, registered a couple of patents that made him independently wealthy, and set to work trying to realize his life's dream. It took him another twenty years before he vitalized the Madonna tactile. That's the story he told me. I wasn't there for the whole slog, of course.

"I'll never forget the first time I saw it. I thought to myself, 'That's really something. How can I scarf some credit off this?'"

"I'm way ahead of you."

Perote nodded. "I forget that I'm talking to an intuit. You'll have to excuse me. The grubber Brothers are generally a little slower than you.

"I did some stone thinking before I decided to run the tactile over the kind of simple folk I grew up with. Having seen what it could do, I thought the indecisive could be quickly convinced . . . and used to convince others."

Cardenas shifted uncomfortably against the abrasive, cold fabric. "I felt the tactile pull me, then saw it melt glass and activate a weapon it was unable to lift."

"What'd you expect? Without an available source of malleable collagen all you have to work with is sound, wave, and light matrix. Sound can give you all the heat you need. You can melt things with it, and it adds to the verisimilitude of the human form. The pressure you felt required coercing a couple of gigabushels of reluctant photons to move in a certain way. More than are used to generate the figure. Wave pressure is sufficient to convince someone they're being touched by something, and to trigger a sensitive switch, but it's not enough to let you pick up heavy objects."

"Then I could have resisted its pull."

"Easy."

Cardenas's gaze hadn't swerved. "How does it kill?"

Perote casually examined the back of his right hand. "The image is all coherent light and electrical fields. It can portage a whale of a subsidiary charge. Enough to induce tachycardia in a proximate subject. Stops the heart. Or it can scramble brain impulses. It's a very versatile program."

"Why do I have this feeling that you're responsible for that particular development and not this Chuautepc?"

"You know, it's no fun having a conversation with an intuit. You anticipate all my answers."

"How does he feel about you appropriating his development?"

"I'm sure if he was alive he'd disapprove strenuously." Perote regarded his prisoner calmly. "Didn't intuit that one, did you?"

"I would have eventually." Cardenas shivered afresh; not from fear. It was cold in the cell. "How did you know I was in your downlink station?"

"The Madonna informed me we had an intruder, of course. When we're in Nogales some of the Brothers and I live in the building next door. We keep the program up and running as a security measure. Works."

"I was wearing security nodes designed to detect and bypass sensors."

"This tactile's too sophisticated for that. It's never completely powered down, always on a stand-ready alert status. I call her my Versatile Virgo." He grinned. "Our lady watches over her little flock."

"Why the Madonna? Why not a nightmare monster, or a small dinosaur, or something terrifying?"

"That's what I'd have engineered, but I'm no Silvestre Chuautepc. Nobody is, or rather was. See, he was a deeply religious man, old Silvestre. A genius sprite uncommon in this day and age. He wanted to give people something to inspire them in their beliefs, to resuscitate the multitude of the Lapsed. I never did find out if his plan was to fraud his tactile Madonna off as the real thing by randomly vitalizing it in a few churchs, or simply to edify the faithful by showing them what one might look like.

"When he was working, he used to babble on and on about how his invention was going to spark a religious revival among the masses, by showing people that traditional religious beliefs and modern technology could not only coexist but reinforce one another. The old bastard was no phony. He really believed all that stuff."

"I had to make use of what I inherited after I *muertered* him. It's not easy to frighten a mark with a Madonna. It wasn't until I got the idea of loading the tactile with a lethal charge that I hit on a way of intimidating the skeptical. The synchronized religious prattle makes it look to witnesses like the wrath of God is at work. After seeing it in operation, I'm not so sure that it isn't more effective than a monster would've

been." He laughed again, an unpleasant giggle. "I'll bet church collections are up all over the Nogales connurb.

"It's a pretty case-responsive program. You can give it a mission . . . we call it convicting an unbeliever . . . and it can react and respond as the situation develops, generating cohesive dialogue on the spot. There's no way we could steady-monitor it during the process and still maintain the illusion. Takes too much crunch just to sustain the matrix. And the power requirements! It has to renew itself from one nanosecond to the next. You can imagine.

"The general public being utterly unfamiliar with tactiles, and pretty credulous to start with, most of them accept it as genuine. I don't have to *muerte* near as many people as would otherwise be necessary in your standard extortion business."

Cardenas pursed his lips thoughtfully. "Seems to me like an awfully petty use for a glorious scientific discovery. Obviously it reflects the limitations of those utilizing it."

"Hey, I know my own limitations. This is so new nobody knows what can be done with it. So I thought I'd try it out on something simple. A little extortion that concentrates on little people. Meanwhile I learn more and more about how to manipulate the process. I'm educating myself, federale.

"If it worked, I knew I could go on to bigger and better things. Which I intend to do presently. Or did you think I intended to keep holding up small merchants for the next decade?" He wagged an admonishing finger at Cardenas. "You have to learn what a tool is capable of before you can decide how best to employ it. I'm just about there."

"Knowing that must let you sleep easier at night."

"I sleep fine, thanks. Business is good and getting better. The *dinero* we've taken in with our elegant little scam will help fund bigger and better things. But then, you were at the last meeting and you know that. You were at that meeting, weren't you?" Again Cardenas said nothing.

"You're not very responsive." Perote's smile widened. "We'll fix that presently."

"I still don't see how you suck enough crunch to maintain it."

"The answer'd ring bells and whistles in Nogales, wouldn't it? But we're not in Nogales, and the utility companies hereabouts aren't near as solicitous of their records. The non-wonders of modern communications. We steal what we need here, generate the program, uplink it via a pirate satellite transponder to Nogales, transfer it to our truck, and from that vitalize it inside a chosen location. If my people are intercepted or found out, there's nothing particularly incriminating in either the truck or the church you found.

"If the worst happens, all we have to do is shift our Nogales base of

operations. Move to Greater Laredo or Matamoros. The equipment there is easily replaced. It's the box here that generates the program that's critical, and nobody's going to find it. Consider yourself an honored, if temporary, exception to our no-visitor policy."

"If you don't mind, I'd rather not."

"As you wish." Perote straightened. "I think I've answered most of your questions. Now you can answer some of mine. I'm really curious to know just how much more, if anything, the federales know about this operation."

Cardenas lay flat on the bunk, slipping his hands behind his head. "Suddenly I'm not feeling very talkative anymore. Maybe after dinner."

"Why waste food on a condemned man?" The door opened, and the two guards the inspector had sensed lying in wait just outside entered. One held a large gun, the other a power injector. Cardenas lay quiescent, awaiting them.

The man with the injector leaned over him. The policeman smiled, closed his eyes, and as the guard reached for his upper left arm, the inspector brought both feet up with astonishing and unexpected speed to catch him solidly under the chin. He went backwards in a spray of fragmented enamel. The gun roared but missed as Cardenas kipped off the cot and closed with the stumbling, bleeding guard, using the dazed man's bulk for cover. As Perote darted to block the portal, Cardenas leaped and somersaulted, coming up in the extortionist's face with an elbow. Perote went careening, his nose broken.

There were two more guards waiting at the far end of the hallway. Cardenas was in the process of silencing them when the injector slammed unforgivingly into his back.

VIII

He was running down a long white corridor. Slowwwly, with his feet barely skimming the tiled surface. Friends and strangers, casual acquaintances and lawbreakers he'd helped put in prison, reached out to him. His father, who'd died when he was twelve. His mother, who smiled maternally and called him her littlest angel before collapsing into a horrid heaving mass of pustulent fungi. His adventurous older brother Felix, who'd successfully dodged flechettes and bullets in Southeast Africa, knives in Phoenix and Choros, only to endure a writhing, painful death from the toxin of a stonefish he'd stepped on while wading with his fiancee across a sun-saturated reef in far-off Kiribati.

Friends quickly replaced family, all breaking apart and crumbling gruesomely before they could reach him. He was on fire himself now

and watched helplessly as little flames burst forth from his fingertips and toes, his hair and genitals. He screamed and flailed at the flames, tried to invoke his training, but nothing would put them out. Burning, he staggered on as the hallway before him grew darker. Teeth beckoned at the far end, sharp as scimitars, their serrated edges dripping acid and ichor. He tried to stop, to turn, to run in the opposite direction, but his legs would no longer obey him. While something vast and unseen moaned expectantly, the eager jaws clashed before him like cymbals.

A large dog, a familiar German shepherd shape, raced up behind him and locked its teeth gently on his trailing arm, ignoring the flames that poured from his blistering skin. Whimpering, it tried to slow his headlong plunge, to drag him back from those gnashing fangs.

On the far distant shore of perception he thought he heard voices shouting. "Hold him down! . . . Get his legs! . . ."

The burning went on for hours, but he never did quite slide into the yawning mouth. Then the fire seemed to flicker and die, leaving him scorched from the inside out. Pressure on his body and limbs eased, but the voices did not.

"If he doesn't rest," one said, "we'll lose him."

"So?" A crisp, uncaring, amoral voice, hiding the hint of an evil giggle.

"You can't get information out of a dead man."

"I'm not sure it's worth the bother, doc. But I'll give you one more try. If he dies then, fuck 'im. I can't hang around here *permanente*. I've got to get back to the flock. Wouldn't want the Brothers to get restless."

Something was placed on a chair that was dragged close to Cardenas's head. "Can you hear me, federale? I'm putting my vorec here. When you're ready to cooperate, just start talking. The whole system here's on auto shunt. Just say you want to start spilling info and a menu will put you on the right path and activate a nice fresh file to take it all down. If you're helpful, I promise you your next *vamanos* will be a lot more comfortable. You'll go quietly, even happily. But don't take too much time to think about it, okay? I got a plane to catch."

Cardenas sensed bodies moving away. Once again darkness closed in around him and there were new nightmares, but these were almost reassuring in their mundanity.

When he awoke it was dark and glacial still in the cell. A little moonlight spilled in through the single high window. He lay on his back, naked, his wrists, neck, and ankles strapped to the cot. One wrist strap was half torn through where he'd damaged it in his convulsions. The lashing across his neck prevented him from raising his head to look around. Another, broader belt of metal mesh bisected his flat belly. The fabric of the old mattress beneath him was still wet with sweat, and his entire body shivered uncontrollably. He was clammy from head to foot.

Perote was right. Cardenas wouldn't last through another session. Unable to ignore his professional side, he found himself wondering what they'd slipped him. A massive dose of Sericol? Senyabutamin? Nudocaine? Maybe a special brew; a sinister cocktail designed to emancipate his inhibitions.

Probably in the morning there would be more questions and then, when he again refused to provide answers, a final party. It wasn't that Perote was particularly vicious or evil, Cardenas knew. He simply didn't care.

He wondered if Sergeant Delacroix and the rest of his guardians up in the circling VTOL's and out on the pave back in Nogales had grown restive enough by now at his lack of communication to check in on him in person, only to find his safe suit riding a mannequin to south central Texas.

He didn't even know how many days he'd lain unconscious, or exactly how far he'd been transported from Nogales. Far enough, he knew, for his captors to require the use of a satellite link to pursue their work.

Well, he'd had a good life, and a self-satisfying if not especially brilliant career. So he wouldn't see sixty. He didn't mind dying. A federale anticipated that possibility and prepared for it from the moment of graduation from the Academy. But he could have done without the pain he was presently suffering and, perhaps even more so, the embarrassment. He'd worn his pride quietly, with his record to back him up. No longer. He found he was more angry than afraid.

He was stripped, half dead, and bolted down. No longer a man but a lump of meat. And there wasn't a damn thing he could do about it.

Except pray.

Auto shunt system, Perote had said. Vorec-driven menu channeler. How open was it? How "auto"? Cardenas could play a vorec the way a good contralto could play Puccini. His head ringing with the effort required for simple motion, he turned as much as he was able toward the chair on which the open verbal recognition pickup lay waiting.

"Our Lady," he began, keeping his voice low but enunciating clearly. His optics were too spazzed to focus on the pickup, but he knew it was there. He called up all the Sunday jargon he could remember from a half-forgotten childhood, when his mother used to send him and his brother off to church school in immaculately pressed and starched uniforms: the only whole and unpatched clothes the rough-and-tumble boys owned. He struggled to call forth key phrases from the Bible as well as vorec manuals and modulation theory.

Occasionally he paused to inject a few minutes of deceptive raving in case anyone was listening in, hoping in that case to buy himself

some time. Now and then he screamed, just so they wouldn't start to think he was entirely coherent and start analyzing what he was trying to do.

Of course there was no guarantee that the vorec was menued in any way to the tactile, but if all the tech for this setup was proximate to itself, even minimally interlinked, and the Madonna program was vorec activated and responsive to the main auto shunt Perote had alluded to, there was just a chance that his fevered broadcast might key an electronic nerve and activate something besides a monitor whose job it was to oversee a simple recorder.

A tactile that powerful had to be more than situation-savvy. It had to be sensitive over a broad area of responsiveness or it wouldn't be able to function effectively, wouldn't be able to react in depth to nonspecific stimuli. Furthermore, it had to be able to acknowledge peripheral vernacular devoid of cryptics. Code words, for sure. Vitalizing phrases. But what kind of code words, which particular phrases?

Perote was smart, but as he'd admitted, he was no Silvestre Chuau-topec. How case-responsive had the eclectic old genius made his program? Flexible enough, surely, so that it could interact effectively with the most simple, unsophisticated country folk.

Criminals were always talkative when they thought they were safe. They liked nothing better than to boast of their exploits.

His garrulous captor had supplied Cardenas with a short profile of the tactile's developer, unlucky and devout as he'd been. Someone like that would make use of certain words to vitalize his matrix, his designs. Words from the Bible, pious parlance from the historical notandum of the church. A catholic molly, so to speak.

A warm radiance harmonized in the cell and the feminine device loomed beside him. "You called out unto me, and I have come. Have you repented?"

"Yes. Oh, yes, Holy Mother, I have repented."

"Then I shall call a Brother to hear your confession." The figure started to pivot.

"Wait!" It was an effort to raise his voice. Was anyone monitoring this, he wondered, or had he simply activated the proper shunt and not some inbuilt alarm attached to the queued recorder? The door stayed shut. Though he knew not how much time he had, he proceeded carefully. "I need clarification first."

The snowy *mater dolorosa* beamed down at him, comely of form, celestial of aspect. "I will help if I can. It is my function."

"You're the holy Madonna, the true lady?"

"I am." The program was self-convicted, as it had to be to function properly, Cardenas knew.

"There can be no other?"

"No other but I."

"Then if I gave you a universal replication code, you couldn't duplicate yourself?"

The womanly matrix seemed to hesitate. Cardenas tried not to hold his breath, tried not to keep looking toward the ominous rectangle that was the door. If anyone was listening, and if that anyone suspected what he was about . . . With luck most of them would be sound asleep. At the moment the lateness of the hour was his only ally, the unseen moon his sole source of encouragement.

"If you're the one true holy Madonna," he plunged on, "you should be able to do almost anything, even create another of yourself. But if you can do that, then you're not the one true Madonna and your programmi . . . your true self is by definition ambiguous. Try it, and maybe we'll both gain some clarification." And he mouthed the codex.

It was a simple and straightforward attempt to lock up the entire extortion program, using military code logi-theory. He had no idea what the result might be even if it worked. But even if it was the last thing he did, he felt strongly that at least he was doing *something*.

Somewhere beyond his cell an intricately folded and very chasmic box accepted the transmission from the open vorec and fed it to the fiendishly brilliant designs of the late Silvestre Chuaupotec. Circuits flashed. On the far side of the state of Sinaloa half a small town went dark as a unique stealth program diverted the community's power allocation to the basement of an old apartment house in a certain village high up in the southern Sierra Madre Occidental.

There was a white flash as the effulgence within the cell intensified. Cardenas blinked, and a second Madonna stood drifting near his feet. Identical with the first. He held his breath.

The two maters regarded one another. Each said simultaneously, in the same optimal, benign tone of voice, "I am the true Madonna, the holy one."

A major truck recharge station on transnamerican highway Four-One flickered as if struck by lightning. The lights inside went out, leaving twelve truckers and a handful of tourists cursing in three languages. The relevant power docks died and a transformer blew on a nearby pole.

Within the now luminous cell four Madonnas pulsed brightly enough to make the pinioned Cardenas squint. In unison singsong the quartet examined one another and individually bespoke, "I am the true Madonna; let none doubt this."

Within the connurb of Tepic all the street lights suddenly went dark. An abrupt, undamped power surge blew out those on the west side of the city, sending glass fragments flying across neatly kept lawns and

recently swept streets. Fortunately the hour was late; the streets devoid of vehicles, the prim yards empty of children.

The door to the cell was flung aside, the heavy wood banging loudly against the interior stone. Clad in starkly colored underwear and a short-sleeved cotton shirt, a half-asleep Perote stood breathing hard and waving a large handgun. He and those behind him had to throw up their hands to shield their eyes from the unexpected glare.

"What the shit is this?" he yelled, hesitating in the portal and blocking the view of the gunmen behind him.

The four Madonnas turned to the new arrival and voiced concurrently, "I am the true Madonna, of the holy spirit."

Cardenas clamped his eyes shut tight.

There was not enough room in the cell to hold the eight Madonnas. Several spilled out into the narrow hallway beyond. One impinged accidentally on the guard nearest Perote. The man shuddered and clutched at his chest. His gun fell from his suddenly limp fingers as he stumbled back against the mossy stone wall and collapsed, his eyes briefly pleading and then vacant. Perote fought past the lifeless mass, his expression wild, eyes wide, immediate thoughts no different from those of his less imaginative but equally panicked associates.

"I am the true Madonna," chorused the drifting, fulgent shapes that packed the cell and spilled through the open doorway, "of whom the word is spoken." Eyes still shut, Cardenas turned his head as far to the left as he could, so that he faced only the cool, gloomy rock wall.

Sixteen Madonnas flooded the hallway and the rooms beyond. Perote and his minions hastened to abandon the structure, a venerable shut-and-shuttered cantina-cum-apartment building, and took to their feet or their vehicles. Sleepy inhabitants of the village, who knew not what the frequent visitors from the city worked at behind their modest walls and gruff security, came to their windows to view the commotion, and lingered wide-eyed to gawk at the multitudinous incandescent Madonnas as they drifted through windows and out doors.

Thirty-two Madonnas formed a ring around the old building. Sixty-four spread out into the streets. Ingenuous artisans and farmers, workers and technicians, alternately slammed tight shut their doors and windows or fell to their knees with hands clasped in front of them with becoming fervor. One hundred twenty-eight luminant Madonnas filtered composedly through the dirt and cobblestone streets, preceding two hundred fifty-six who fanned out into the countryside, astonishing ranchers and cattle and sheep alike.

In Zacatecas every vit station went off the air. All of Colima went dark. In Juchipila power to the whole community of thirty thousand evaporated as the supraheavy grid buried alongside the little mountain

cantina siphoned energy from the entire west central portion of the Namerican national power net.

Five hundred twelve Madonnas marched through the streets and alleys and cobbled byways of the village of Yerba Alto, beaming at the residents, smiling at maddened cats and dogs, thoughtfully bestowing voluntary benedictions on wide-eyed, dark-haired children.

Every electrical appliance, circuit, device, shunt, and toy within a radius of two kilometers had exploded, burnt out, melted, shorted, or otherwise shut down. Only in the little village did darkness not hold sway. On the contrary, it blazed with a pale radiance visible to aircraft as far as a hundred kilometers away.

A vortex of one thousand twenty-four Madonnas invoked considerately; to the overwhelmed populace, to those who fled in mindless panic and fear, to the fleeing Brothers of the Order, to their raging master Perote who was swept up in their hysterical flight, and to Cardenas where he lay bound in his cell, his eyes shut tight, sweat-stained face facing the wall, the awesome light pressing dangerously hard against his inadequate eyelids.

"I AM THE HOLY MOTHER, THE ONE TRUE MADONNA, THE BRINGER OF LIGHT AND HEALING," the one thousand twenty-four chorused angelically from streets and fields and rooftops as the carefully aligned photons of Silvestre Chuautapec danced and the central matrix frenzied.

On the lip of the Pacific just north of Acapulco, the parallel power plant at Ketchtec, which tapped gigawatts from the thermocline just off the coast, flickered and flared. Conduits liquefied, safeties snapped, huge transformers wailed. With a great electronic gasp and crackle the plant's safeties congressed and closed. Power to two states was shut off. Towns went dark, cities went quiet, and for a brief while the landscape was as it had been a thousand years before, deserts and mountains and beaches slumbering in darkness beneath the benign simper of a waning moon.

Emergency lights winked on, portable lamps were dragged from their places of hibernation in cases and cabinets. Everywhere there was confusion, puzzlement, anger, uncertainty, much of it directed at a utility company that was quite innocent and equally as perplexed as its unexpectedly disempowered customers.

A thousand twenty-four true Madonnas vanished, the energy they had been drawing upon withdrawn, temporarily cut out of the Namerican grid. Cardenas's desperate, careful reasoning had induced replication, which had finally collapsed under the weight of its own truth.

He lay shivering in his cell for another six hours, well after the dawn had broken, until a passerby on his way to work heard his hoarse, weak-

ening shouts. Hesitantly entering the deserted cantina, the man found the naked and blistered Cardenas bound to his cot and released him. Then he went to get some of his friends, because the inspector was too feeble and drained to walk. He was blistered not from his nightmares nor from the drugs which had induced them, but from his extended proximity to the one true Madonna. To all of them.

There was very little left of the main box and its support facilities in the basement of the attached apartment building. Whatever half-magical programs it had contained had been fried, not wiped, when the system had overloaded. Only automatic sprinklers had isolated the resultant flames and saved the buildings, and Cardenas.

Local federales contacted his friends in Nogales, who immediately descended in force on the church of the Order of Our Lady to confiscate everything and everyone they found there. They were subsequently guided to the sophisticated relay truck and its baffled crew by one of the more talkative Brothers they took into custody. Brother Morales was not the only member of the Order possessed of a loose tongue.

Perote they did not find, but Cardenas knew they would do so in time, and he fully intended to be around when that collar of a different sort was announced.

Drink and food and rest and medicine restored him. His dark skin had saved him from a far worse burn than the one he'd suffered, though he would have to walk gingerly for days. When he was finally able to return to Nogales, everyone in the Department was almost embarrassingly solicitous of his well-being, and not just because he was the senior inspector on the force. Cardenas was genuinely liked by his colleagues, regardless of rank.

"I saw Charliebo," he blurted to Cooperman as the latter was preparing to leave the inspector's apartment after they'd watched the Sunday game together on Cardenas's vit.

"What?"

"You remember Charliebo. My ex-seeing eye shepherd? The one who got vacuumed last year by that subox tunnel those two self-vacuumed multinat renegades devised. It transposed him into a tactile defense mechanism for their system. Poor Charliebo. When I was drowning in the worst of that bad trip, he was the only friendly shape that hung with me. He tried to help me."

The captain looked away, embarrassed. "Sure, Angel. Glad he was there for you."

"Go ahead; patronize me. I wonder, though, if he was only there in my nightmare. They still haven't succeeded in tracing the line of the GenDyne-Parabas subox tunnel. Nobody knows where it really goes,

what it links up with and doesn't link with. Maybe there's some kind of as yet undiscovered crossover seam between all of these cyber things. Nobody really knows. We just build them and vitalize them and check to make sure they're doing their jobs. We don't know what they do in their spare time. Maybe it wasn't all a dream, all bad trip. Maybe Charliebo was really there, jumping from box to box, using the tunnels and trying to help me."

"I wouldn't know about things like that, Angel."

The inspector leaned back in his easy chair, the one upholstered in archaic cotton fabric, feet up, one gnarled hand fisting a cold Tecate Primo. "Nobody does, Shawn. Nobody does."

The captain looked at him for a long moment, then let the codo door close quietly behind him. Cardenas checked the numerals that floated blue above the vit screen. Eleven twenty. Time for bed. He had another week of administrative leave in which to relax, recover, or do nothing, as he saw fit. Plenty of time to think, and rethink, and ponder.

His gaze flicked to his home box, which occupied an alcove next to the wall screen. It was powered up, dormant, waiting for input. With his left hand he reached for the vorec that lay on the end table next to his easy chair and snicked it on, raising it to his lips.

"Our Lady . . ." he began. The telltales on the home box twinkled, indicating it was receiving his transmission. He hesitated, then flipped the vorec off and laid it aside.

A week was time to do too much thinking, he told himself. He needed to get back to work, to the reality of district headquarters, to the clamor and pungency of the pave. He pushed himself out of the chair and headed for the bedroom.

As he turned, he thought he saw a flicker of white light flash from the cover of the box's metallic composite case. But probably not. ♦

AMAZING® STORIES

Back issues and anthologies
available by mail order

If you'd like to catch up on your reading of the world's first—and the world's finest—science fiction magazine, we have an extensive selection of recent back issues available direct from the source by mail order.

Every magazine published for the last four years is still in stock, except for the December 1992 issue—but several others are in short supply. The available magazines include:

- Digest-sized issues that were published every other month from May 1990 through March 1991, priced at \$2.25 each;
- Full-sized issues, with color illustrations accompanying every piece of fiction, that were published monthly from May 1991 through Winter 1994 (December 1993), priced at \$5.00 each;
- Digest-sized issues dated September 1972, January 1973, August 1973, and November 1978, priced at \$1.75 each.

Also available in limited supply are seven anthologies that were published by TSR, Inc., in 1985 through 1987, most of which feature reprints of classic fiction from AMAZING Stories and its companion magazine *Fantastic*. These anthologies include:

- Four trade paperback books (*AMAZING Stories: 60 Years of the Best Science Fiction*; *AMAZING Stories: Visions of Other Worlds*; *FANTASTIC™ Stories: Tales of the Weird & Wondrous*; and *Cinemonsters*), each priced at \$8.00;
- Three paperback collections of fiction from the first three decades of AMAZING Stories (*The Wonder Years: 1926-1935*; *The War Years: 1936-1945*; and *The Wild Years: 1946-1955*), each priced at \$4.00.

To order any of these magazines or books, simply total the price of all the merchandise you want—postage and handling is included in these prices—and send your order along with payment to AMAZING Stories, P. O. Box 111, Lake Geneva WI 53147. Every order will be processed the same day it is received, and will be shipped via third-class mail or UPS ground service.

For a complete detailed list of all the magazines and books, including some specific information about the contents of each publication, send a self-addressed, stamped envelope to the address above and we'll mail the list back to you the same day your request arrives.



The sweeping saga of honor, courage, and companions begins with . . .

The Chronicles Trilogy

By *The New York Times* best-selling authors
Margaret Weis & Tracy Hickman



Dragons of Autumn Twilight

Volume One

Dragons have returned to Krynn with a vengeance. An unlikely band of heroes embarks on a perilous quest for the legendary *Dragonlance*!

TSR #8300

ISBN 0-88038-173-6



Dragons of Winter Night

Volume Two

The adventure continues . . . Treachery, intrigue, and despair threaten to overcome the Heroes of the Lance in their epic quest!

TSR #8301

ISBN 0-88038-174-4



Dragons of Spring Dawning

Volume Three

Hope dawns with the coming of spring, but then the heroes find themselves in a titanic battle against Takhisis, Queen of Darkness!

TSR #8302

ISBN 0-88038-175-2

Sug. Retail Each \$4.95; CAN \$5.95; £4.99 U.K.

DRAGONLANCE is a registered trademark owned by TSR, Inc. © 1994 TSR, Inc. All Rights Reserved.